DOCTOR OF BUSINESS ADMINISTRATION

The Links between Organisational Strategy and Project Management

(The process and the Key Decision Factors (KDF) of strategic projects implementation route selection)

George A. Vassilopoulos

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Organisational Strategy and Project Management

Document One

Definition and mapping of research questions

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"Document 1 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

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Abstract

Survival in today's highly competitive modern business environment requires continuous investment in new ideas and products by using modern technologies and practices. Additionally the rapid technology evolution affects organisations significantly. The strategy of an organisation, both in service and manufacturing sectors, must invest continuously in Research and Development (R&D) for new competitive products and services. Such a new product or service must be available to the market in time and with the appropriate quality. On the other hand, projects are becoming increasingly complex and run various risks. Furthermore, business projects involve many elements, necessitating flexibility in their implementation. Obviously, there are also many different types of business projects for implementing the organisation strategy. According to a survey by the Standish Group, only small percentages (15-20%) of projects are successful. Even the best-designed business model cannot last forever and must be continually adapted to keep pace with shifting customer needs, markets and competitive threats. The aim of this research is to identify the links and investigate the gaps and factors that influence the relationship between the business strategy and project management contexts. By a preliminary review of literature, the initial conceptual framework and the related theories to this study are presented. The methodology suggested in this study, is assessed with recent research methodologies. The proposed methodology contains literature reviews, interviews, surveys, questionnaires and observations of business strategies and project management processes that will be gathered from a significant sample of organisations. The samples will be collected from PMI member organisations, in both manufacturing and service sectors. This method aims to help towards the discovery and collection of all those valuable business experiences and tacit knowledge. The conclusions from this study are proposed to be used for the construction of a new flexible strategic model that will be based on the strategic management of critical factors such as Human Safety (HS), Time Quality and Cost (TQC). This model will incorporate two basic concepts, the prevention strategy and the continuous improvement concept. It is hoped that this approach will produce many opportunities for further research and investigation on the development of business implementation strategy.

1. Overview

1.1 Organisation Strategy Context and Implementation

Formulating and implementing corporate strategy, are some of the most actively researched, taught and discussed subjects in business today. Many writers have accepted that the academic notion of corporate strategy created as a means of considering and articulating how the corporate goals and objectives of the organisation, are pursued and achieved. On the other hand projects and project management are often quoted as important means of implementing a business strategy. Additionally, there are a lot of attempts to clarify Business strategy and its subsequent implementation, by older and more recent literature. Many authors have extensively dealt with this process with plenty of suggestions of how strategy can be implemented. The issue as it pertains to "*The Links between Business Strategy and Project Management*" has not been the focus of an in-depth explanation and analysis. This study aims to address this deficiency in more detailed analysis with the production of a strategic model in order to support this issue. This model will be based on the conclusions of the research and identification of those connections and gaps between business strategy and project management. (For the definition of the construction of such a model, see Appendix 2).

It is hoped that the results of this study will be of benefit to the following areas:

- Senior management and business strategy decision boards
- Business programme and project managers
- Project management offices (PMO)
- Researchers in project management in organizations and institutions world-wide

1.2 Outline of the document

This document begins with an explanation of the argument as to why this subject is to be studied. The intention of the overall research and particular research questions are partially identified as well. Firstly, a broad outline of how this subject is going to be explored and secondly, a preliminary introduction to this issue with a brief literature overview. The conceptual framework chapter presents the challenge to research how business strategy can be implemented through project management and how it is affected by a range of internal and external factors. It in addition identifies the objectives and the delimitation lines. In the fourth chapter, the rationale behind the proposed methodology is explained and the methodology itself is mapped. Finally, the development of Documents 2, 3, 4 and 5 are demonstrated tentatively, since some alterations might emerge during the progress of this research. In the final section of this paper, the expected ethical and political issues and outcomes are set out.

2. Subject and Objectives - Justification of research problem

2.1 Topic, problem, issue description and justification

Overall, strategy implementation by using project management process is an under-explored and insufficiently described subject in business and project literature. In fact, substantially it is a relatively well-trodden area and deserves more attention as there are little references in the literature on how business strategy is translated into projects. Obviously, there should be a case for understanding better, the way that the project management is associated and corresponds in order to accomplish the strategic business decisions.

On the other hand Strategy is dealt with by numerous authors, most of whom address the concepts and processes associated with strategy analysis, strategy creation (formulation), strategy evaluation, and strategy implementation. However, very few of them explicitly connect corporate and business unit strategy with project strategy. It seems that there is a deficiency on writing about how corporate strategy gets translated into a comprehensive programme or project management strategies (Morris *et al* 2004). Most of the traditional management writing covers the strategic management processes that formulate and implement strategy at the corporate level only.

The recent PMI research by Peter Morris and Ashley Jamieson (2004) was performed using a high-level approach to this concept, and did not drill down to link channels and strategically influencing factors. It is also stated and revealed that there was an open field for further research into the concept of a project strategy and organisational Strategy translation process, too. According to this research case study, the translation of corporate strategy moves among Portfolios, Programmes and Projects. Based on this main simple approach, there should be some factors that determine the way in which a business strategy is translated into programmes and projects.

A recent research approach concerning the link between project management and business strategy performed by Srivannaboon (2006) stated that the major limitation of the research was the study of a small number of cases. He also suggested that further empirical research should be based on various business strategies and project types, too.

The successful organisation employs project management as a strategic tool to respond to the changing environment and to outperform those that do not adapt. An organisation that excels

at project management becomes an agile organisation that knows how to deal with and drive change. From the survey results of PricewaterhouseCoopers Report (2004), the leading organisations use project management to consistently position themselves 'ahead of the wave' of change. (Nieto *et al* 2004).

There are many fundamental purposes for an organisation to develop a strong link between project management and organisation strategy. A clear link to strategy gradually supports and enhances inter-project cooperation. For example, projects do not normally have dedicated resources, so they must share them with other projects and departments. Consequently, there is an essential demand to make intelligent choices of the efficient use of the resource pool and know what other projects exist, what resources they require, what the relative priority of all the other projects is, and how all the projects add up to a consistent strategy. Understanding the strategy is motivational as well. Seeing the project as a component of a total system aiming at particular goals, will help to motivate the human resources of the organisation. (Graham *et al* 1997).

According to Grandy (2001), in many organisations business projects are only loosely connected to the bigger picture of the business strategy. They are divided into the following categories:

1. Those at the project level, which may not be fully aware of the business strategy itself, except in the most general way.

2. Top management might be reluctant to share this picture out of concern for commercial sensitivity (especially in terms of future direction).

3. The project managers themselves may not see the importance of being aware of the detailed and specific content of the business strategy

4. Strategy itself may not be clear and worked out in detail.

5. It is rather hard to link one thing (a project) to another one (a business strategy) if the second thing only half exists.

Generally, business strategies are not always very clear and deliberate. There is a rigorous form of a 'strategy' mix which will shift in due course, moving from deliberate to emergent and back to deliberate again. The strategy mix partly accounts for the reason why it may be difficult to link projects with strategy. Equally, each individual project may itself move

through the strategy mix, starting off with clarity of scope, objectives and linkages (a deliberate strategy) and then slipping into the other phases of the strategy mix.

Additionally Figure 2.1 illustrates how the strategic levels are connected from the vision of the organisation and strategic breakthroughs to strategic programmes and finally to the implementation with strategic projects and how they are influenced by external and internal changes (Grandy 2001).

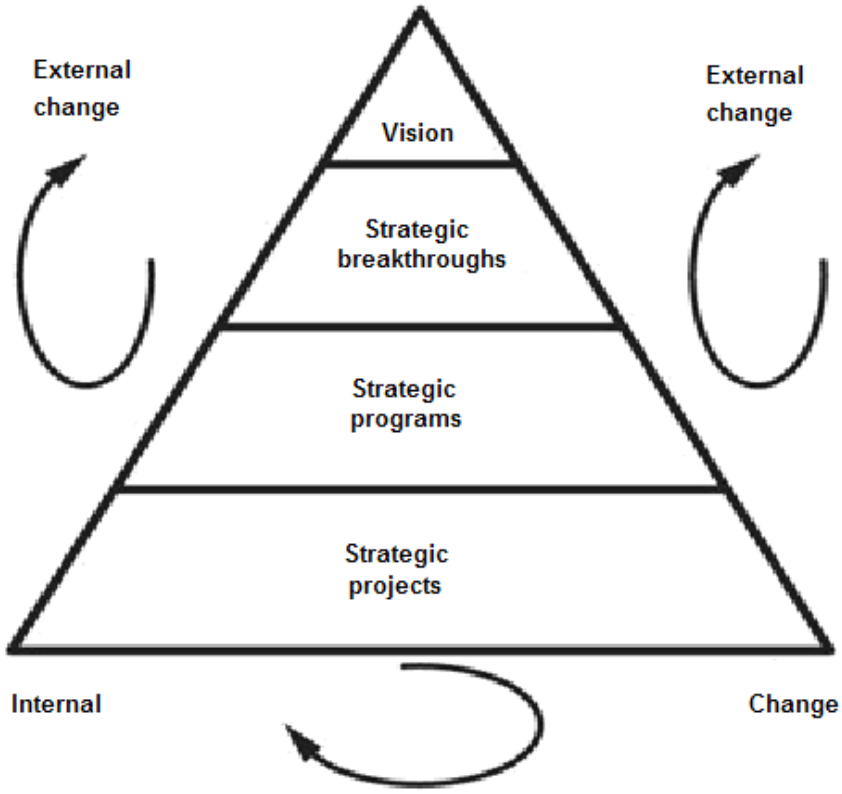

Figure 2.1 Business strategy as a stream of projects

Source: Grundy Tony. (2001). Strategy *Implementation through Project Management*. Thorogood.

There is a controversial perception of what was planned and what really happened in practice when faced with unpredicted situations. In this case the terminology “happen in practice” can be translated as ‘what experience can be used for avoiding problems and predicting the future’.
Moving from plans to actions and controlling against results is not an easy task in any company and may become extremely complex in large or diversified organisations. It is also an area which may meet unusually strong opposition from managers because life for them would be easier if the implementation was left to them on a purely informal basis. (Hussey 1998).

According to the Standish Group’s research on 1994, project failures today (as shown in Appendix 1), show that a staggering 31.1% of projects will be cancelled before they ever get completed. Further results indicate 52.7% of projects will cost 189% of their original estimates. The cost of these failures and overruns are just the tip of the proverbial iceberg. The lost opportunity costs are not measurable, but could be easily estimated at trillions of dollars. One has just to look at the City of Denver to realize the extent of this problem. The failure to produce reliable software to handle baggage at the new Denver airport costs the city $1.1 million per day. (Standish Group 2000).

The complexity of today’s business infrastructure is one of the reasons why so many projects fail. A European survey showed that one of the principal problem areas in project management is the specification of requirements for such advanced new technologies (Somerville *et al* 1997). The difference between the initial requirements and the final delivery of product or service specifications is a very common reason for failure. The unacceptable cost, quality and time of delivery but also factors such as the deficiency of human safety, are in most cases the reason for the ruthless execution of projects during their implementation. Customer’s expectations will also be changed and this in turn means large changes in project specifications. Budgeted investment might not be capable of supporting the new requirements of a project.

Simultaneously, there appear to be many gaps in traditional project management theory which does not seem to be in a position to support today’s requirements of a strategically driven business project. Theory provides many methods, suggestions and models (like PRINCE, PRINCE 2, PMBOK, Spiral Lifecycle, Waterfall etc.). General literature on project management has broad directions of ‘how-to-do-it’, which generally focuses on projects and covers all technical and controlling aspects of the project (planning, financing, scheduling, resource consumption etc.). But there is a need for a more integrated approach to strategic

driven project management theories and a need for extensive research of practice. Theory and research into practice can provide valuable elements for the direction to take, in order to develop a core model framework for the link between Strategy and Project Management. Hopefully, this can be achieved by combining theories with experience and tacit knowledge collected by the research.

Modern trends in the business competitive environment today, instigate companies to act using a project driven organisation model by managing multiple projects and controlling with continual result based feedback. Artto (2001) has pointed out that less is included in the strategy of managing a project than in the development of the project itself (Artto *et al* 2001).

2.2 Objective

The primary objective of this study is to identify all those links and reveal any gaps in the relationship between the business key decisions and their implementation through project management. Furthermore, the considerable extent of this research is to investigate those factors that influence this relationship. There is also the vision for the development of a "Strategic Link Model" which will participate in the active role of the translator between the organisation strategy and project management contexts, such as portfolio, programme & project processes. Hopefully, this will originate from the outcomes of the critical literature review, the qualitative and quantitative information analysis. Figure 2.2 show the common framework of business strategy implementation through project management context with the external and internal factors and their influence between them.

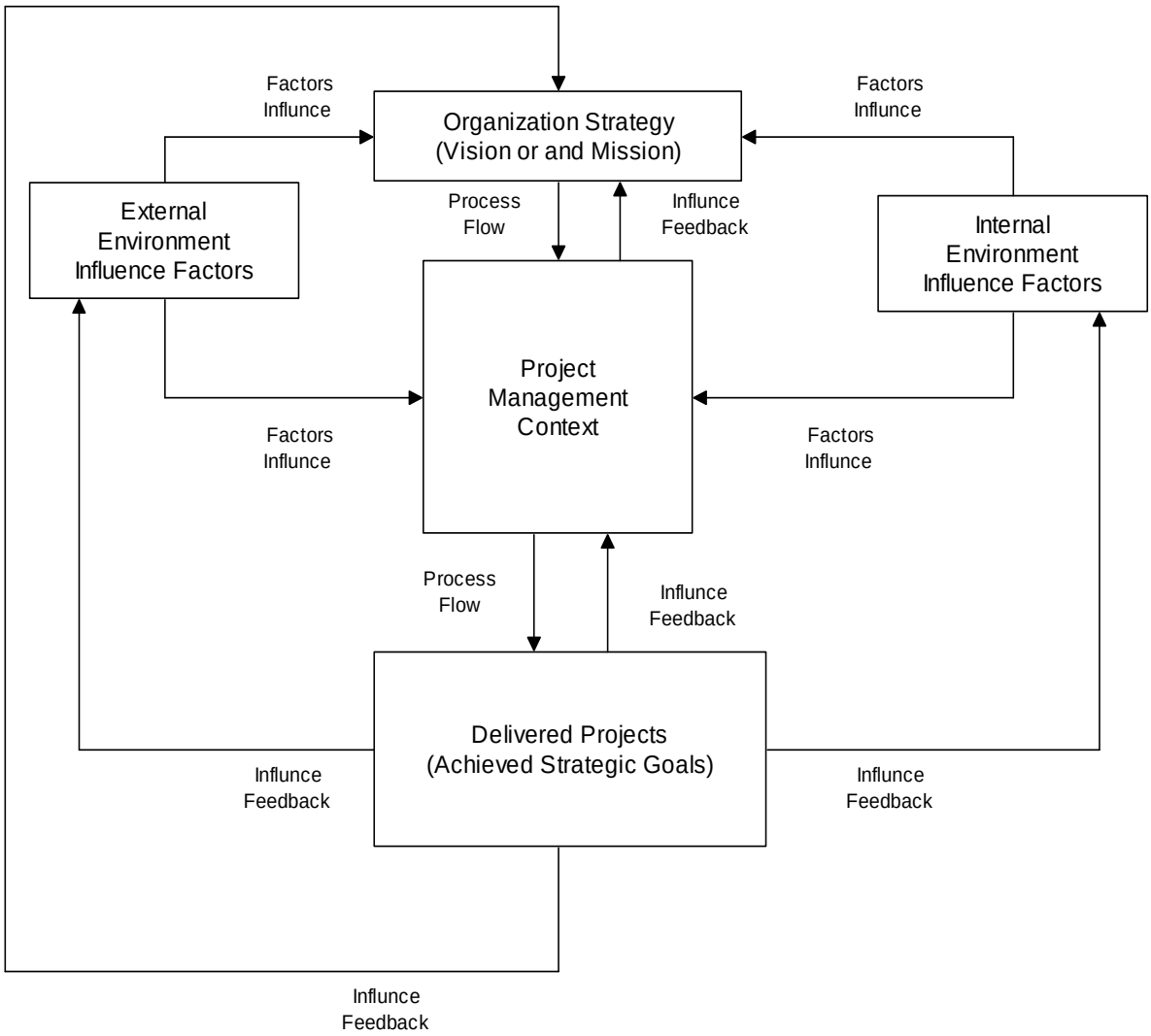

Figure 2.2 The current implementation process of organization strategy through project management context.

For the initial development of such a model, there is an essential demand for a comprehensive investigation of the way in which a strategic plan is generated, in relation to the global nature of the leadership of the organisation culture and complexity, size and expertise of planners. It must be also noted that there will be a research into variety of contemporary perspectives, models, concepts, processes and approaches dominated in modern strategic long term trends. Additionally, an investigation will take place in the class of strategic planning models, including goal-based, issue-based, organic and scenario. Finally, there will be a comprehensive appraisal of the realistic ways operated in executive organization environment and how critical plans are promoted to implementation using current project management processes.

2.3 Delimitation of scope

Organisational Strategy and Project Management are very large areas of research, so the boundaries will be initially limited by various sectors to an adequate sample of some of the large organisations. Research interviews and survey questionnaires will be applied to a representative list of international PMI members as well as through other channels of local Greek trade unions of organisations. As it will be mentioned in the research methodology later on in this document, it is important to use carefully structured interviews and surveys, observations and empirical investigations in order to collect the tacit knowledge and experience in practice, as accurately as possible.

3. Preliminary Literature Review and Conceptual Framework

The conceptual framework through the preliminary literature review is formulated and presented to the figure 3.1. The flow illustrates the link between strategy and vision as it is drilled down to implementation through project management processes. There are also inherent feedback loops that may modulate the final behavior of the system. A preliminary literature overview on these key research areas and their influencing factors are presented in the following sections. These areas will be extensively reviewed and assessed in Document 2.

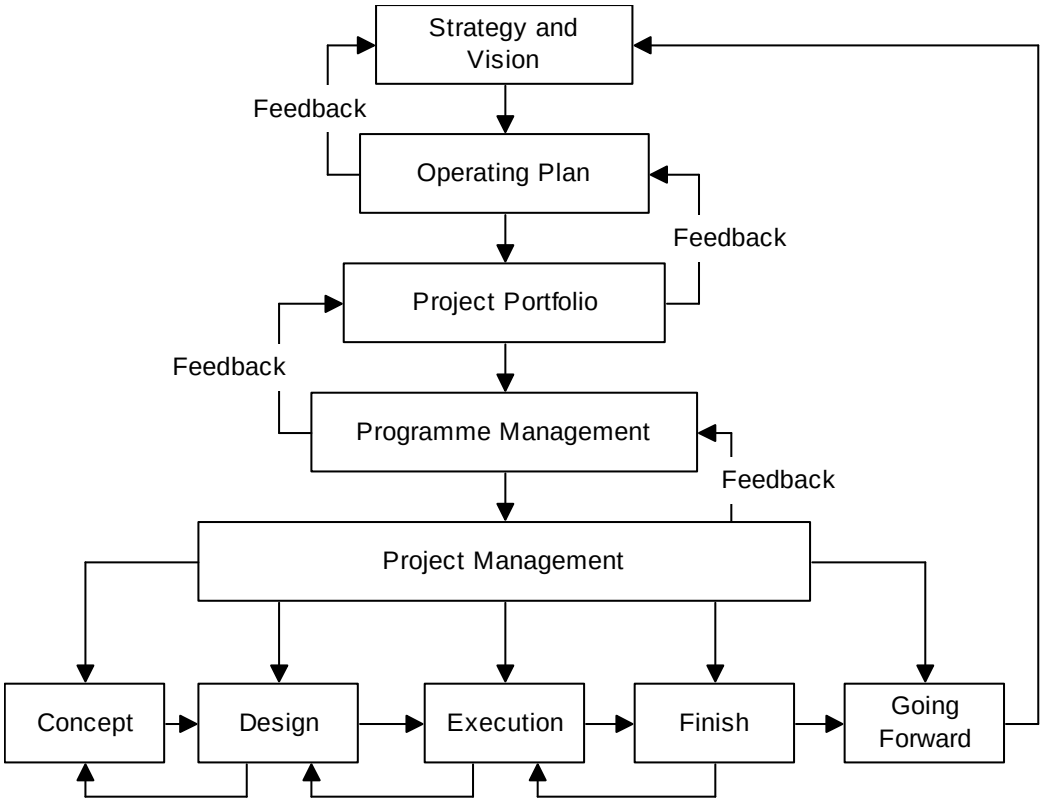

Figure 3.1 The link between the strategy and the conception of projects

3.1 Organisation strategy and vision

Corporate strategy may have as a result a business decision for action or a planned project. Strategic management of an organisation is concerned with the determination of the future directions in the market, by implementing decisions aimed at achieving any business objectives according to a managerial plan (Schaffer 1988). Also one of the primary targets of modern organisations is the survival by increasing their potential competitive advantage and by improving the efficiency of business processes, too (Lientz et al 1999).

According to Webster's New 20th Century Dictionary Strategy is:
"The science of planning and directing large-scale military operations, specifically (as distinguished from tactics) of manoeuvring forces into the most advantageous position prior to actual engagement with the enemy" (Webster's New 20th Century Dictionary, 2d. ed. 1973).

Another more organisational approach can be the following: Strategy is the science of planning and managing a corporation's operations, specifically of positioning a corporation in its chosen markets to achieve maximum sustainable advantage over its competitors. It is the driving force that shapes the future nature and direction of the business. It defines the corporate vision and the means that will be employed to achieve that vision (Wilson 2003).

Mintzberg, Ahlstrand, and Lampel (1998) stated that strategy management is a dynamic process. Mintzberg and Quinn (1996) show that *emergent* strategy is a key factor namely strategy that becomes evident as it, and events, emerge with time, in influencing the way strategy is realized in practice. Hill and Jones (2001) demonstrate how emergent strategy can influence intended strategy through components of the strategic management process (Peter Morris *et al* 2004).

Strategy can be introduced as a business case through a structured proposal for business change that is justified in terms of costs and benefits. This is a typical prerequisite for the initiation of a large project and is explicitly required by many project management methodologies. The main reason to have a link between business strategy and project management in a market driven organisation is according to Porter's view the following "The essence of strategy formulation is dealing with competition". (Cadle et al 2001).

Porter (1980) stated that to obtain a sustainable competitive advantage, an organization must reinforce its adopted strategies. Depending on the considerable scope, there are three generic strategies. They are cost leadership, differentiation, and focus. When an organization adopts only one generic strategy, it has the essential power to gain competitive advantages and outperform its rivals. However, if an organization pursues more than one generic strategy, it will perform below its capability.

3.2 Operating plan

Successful organisations should start dynamically with strategic planning. Vision and Mission are driving the development of key strategies to move the organisation from the current state to their desired future state, using improvement projects. Today, key strategies are translated into operational and tactical project plans at the departmental level. Managers and staff are creating plans needed to fully realize the key strategies that can support the mission. Project plans and their supporting initiatives define total organisational effectiveness, too. (Morris *et al* 2004).

Strategic planning for project management is the development of a standard methodology, which can be used over and over again, and which will produce a high likelihood of achieving the project's objectives. One primary advantage of developing an implementation methodology is that it provides an organisation with a consistency of action (Kerzner 2000). Planning can occur on at least two levels, corporate or a strategic business unit (SBU). At the corporate level, the focus is on managing a balanced portfolio of profitable growing businesses, by adding value to shareowner investment (Wilson 2003), as shown in Table 3.1.

Corporate level primary concerns
Identifying and acting on companywide strategic issues
Deploying and redeploying assets within the company's portfolio
Exploiting synergies across business units
Entering major new areas (outside the charter of existing business units)
Reshaping and renewing the corporation (structure and culture)
Increasing the value of shareowner investment
Providing guidelines to help business units develop their strategies.

Table 3.1 Corporate level primary concerns

Source: Wilson Ian. (2003). *The Subtle Art of Strategy: Organisational Planning in Uncertain Times.* Greenwood Press. ISBN : 156720435X

Additionally Figure 3.2a, indicates how strategy formulation flows from an organisation's mission and goals through functional, business and corporate levels.

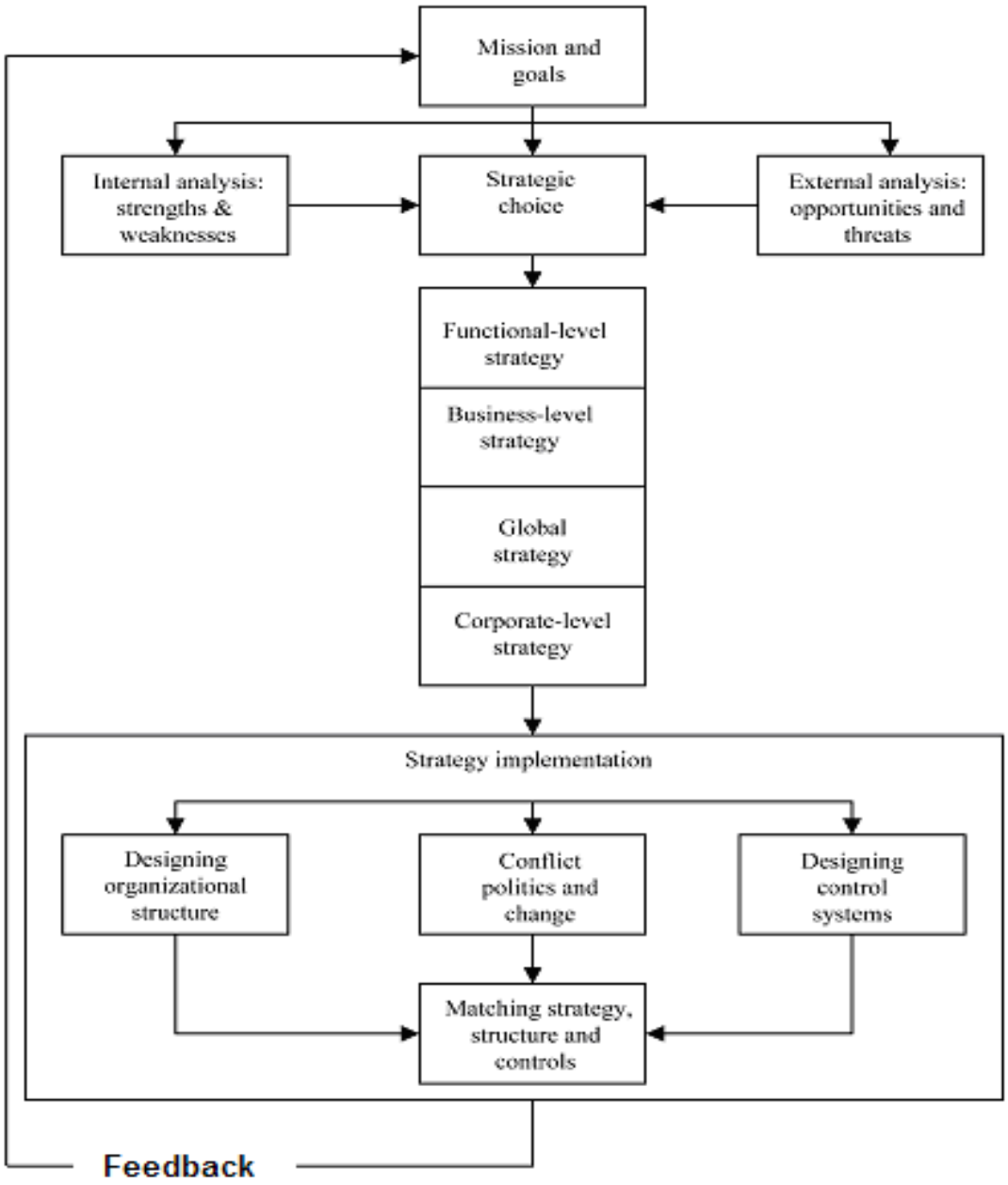

Figure 3.2a Formulation flows from an organisation's mission and goals

Source: Charles W. L. Hill & Gareth R. Jones. (2003). *Strategic Management: An Integrated Approach* (Fifth Edition).

The approach that strategy can be translated into specific implementation plans for the various components and functions of the company is shown in Figure 3.2b. This is the critical juncture between strategy and operations, the point at which detailed goals, action plans, responsibilities, and financial projections can be developed. Moving from strategy to planning implementation focuses on the execution of these operational plans. In this case the implementation of strategy is driving down deep into the organisation by emphasizing once again the requirement for persistent communication to those charged with implementation.

So, those which are responsible for this activity must be thoroughly conversant with required details, committed and implement strategy as their own goal (Wilson 2003).

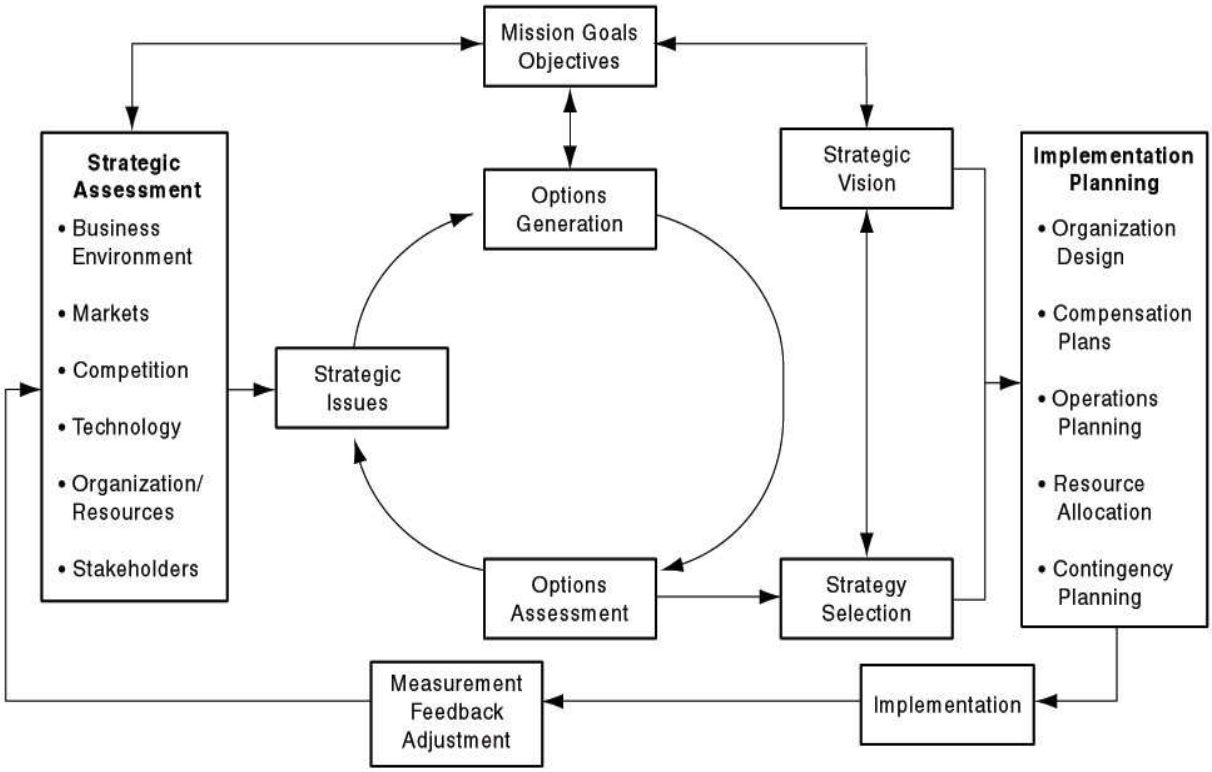

Figure 3.2b Formulation flows from an organisation's mission and goals

Source: Wilson Ian. (2003). *The Subtle Art of Strategy: Organisational Planning in Uncertain Times.* Greenwood Press.

Strategies for the attainment of the project objectives should similarly be developed in as comprehensive a manner as possible, right from the outset. This means that at the pre-feasibility and feasibility stages, for example, industrial relations, contracting, communications, organisation, and systems issues should all be considered, even if not elaborated upon, as well as the technical, financial, schedule, and planning issues.

Projects are in danger of encountering serious problems if their objectives, general strategy, and technology are inadequately considered or poorly developed, or if their design is not firmly managed in line with strategic plans. The definition of a project is affecting and is affected by changes of external factors such as politics, community views and economic and geophysical conditions, the availability of financing, and the project duration. Therefore this interaction must be managed actively. It is very hard to manage the definition and implementation of a project with interaction of those external factors. Possibly it is damagingly prejudiced if the attitudes of the parties essential to success of the project are not

positive and supportive. The strategic model for managing projects is shown in Figure 3.3c. (Dinsmore 2006).

The strategic model for managing projects is shown in Figure 3.3c. (Dinsmore 2006).

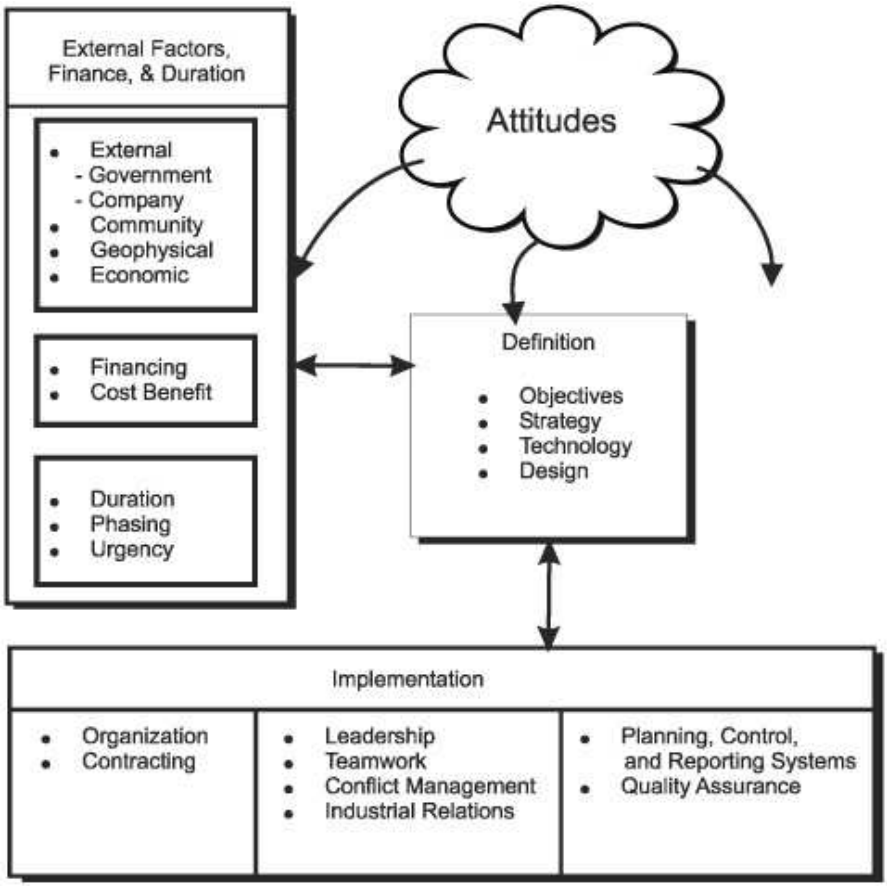

Figure 3.3c. Strategic Model for Managing Projects

Source: Dinsmore Paul C. Jeannette Cabanis-Brewin.(2006). T*he AMA Handbook of Project Management*, Second Edition. AMACOM

Strategic projects necessitate a new analytical tool to be set in relation to those found in traditional project management disciplines. Moving from plans to actions and controlling against results is not an easy task in any company, and may become extremely complex in large or diversified organisations. (Grundy 2001).

According to Wilson (2003), there are three subjects which are involved in the translation of the proposed strategy into action:

1. Implementation plans. Specific plans/ projects for the next one to three years designed to translate the strategy into action (marketing, production, distribution, R&D, licensing, human resources, organisation, etc.) Specifying, for each project, responsibilities, schedules, resource requirements (capital, human resources, technology, etc.).

2. Financial implications. Forecast financial results of implementing the strategy (sales, costs, profit, market shares, etc.), year by year for the next three years Capital budget required, year by year for the next three years.

3. Contingency plans. Summary of plans (responsibilities, proposed actions, trigger points, impacts) to deal with major contingencies (Wilson 2003).

3.3 Project portfolio and programme management

According to the approach taken by the Project Management Institute (PMI) the alignment of organisation governance is achieved through strategic planning, management of normal standard operations and management by projects. Such governance includes a project management context such as portfolio, programme, projects, process tools and metrics as it is illustrated in Figure 3.3d.

Figure 3.3d An Organisational context of Portfolio Management

Source: Project Management Institute PMI. (2006). *The Standard for Portfolio Management*. Global Standard 2006 First edition.

Strategic plan is linked to the project management context (Portfolio, Programme and Projects), by enforcing the vision, mission and goals of the organisation, while in parallel is influenced by their feedback and performance, as is shown in the Figure 3.4.

Figure 3.4 Organisational relation context of Portfolio, Programmes and Project Management

Source: Project Management Institute PMI. (2003). *OPM3. Organisational Project management Maturity Model*, Project Management Institute.

From another point of view, in the diagram of Figure 3.5, the assumption is that the organisation's strategic planning process has generated a number of portfolios, similar to key strategic plans. Programmes A and B have some elements in common and are therefore connected and the projects being managed under Programme A are interrelated in some way, as would be the case for Programmes B, C and D.

Figure 3.5 The link between the strategic plan and the conception of projects

In another approach from Project Management Institute (PMI), Figure 3.6 shows the relationship between the business strategy and the tactical processes, (Portfolio management and authorized projects) and how they are linked to the organisational resources. Implementation of strategy requires the application of strategic management, systems and tools in order to develop a high level operations and portfolio planning and management (PMI Portfolio Management Global Standard 2006:6-9).

Figure 3.6 An Organisational context of Portfolio Management

Source: Project Management Institute PMI. (2006). *The Standard for Portfolio Management*. Global Standard 2006 First edition. ISBN: 1-930699-90-5.

In conclusion, Jamieson and Morris (2004) identified strategic planning, portfolio management, and emergent approach as key steps in the linking process, but they did not provide a structure and did not position their research as a set of case studies or as a theoretical foundation for linking organizational strategy with project management.

3.4 Project management process

Project management is an integrative endeavour - an action to take action, and to implement changes. Projects are ad hoc endeavours and have a defined life cycle, by building blocks in the design and execution of organisational strategies. It is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. It is accomplished through the use of processes such as initiating, planning, executing, controlling, and closing (PMBOK 2000).

Today, project management has reached a level of maturity that entitles it to a rightful place in the field of general business management. Professor Pinto (2001) observed that project management is a philosophy and technique that enables its practitioners to perform to their maximum potential within the constraints of limited resources, thereby increasing profitability (Pinto 2001).

On the other hand, 'Strategic Project Management' (or 'SPM') is defined as 'The process of managing complex projects by combining business analysis and project management techniques in order to implement the business strategy and to deliver organisational breakthroughs.' (Grundy 2001).

Strategic Project Management Process contains five key stages. Figure 3.7b emphasizes that project management may require the project to be re-defined or the project strategy to be re-visited. It also highlights the need to anticipate the project's implementation difficulty - at the planning stage and even earlier.

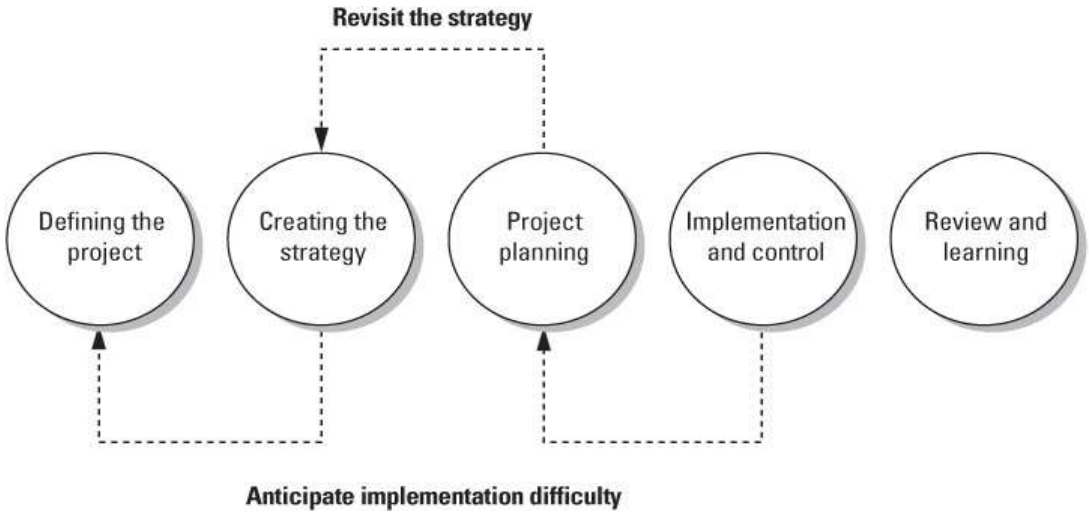

Figure 3.7b Two dimensions of strategic decisions

Source: Grundy Tony. (2001). Strategy *Implementation through Project Management*. Thorogood.

Project strategy is the overall approach for setting up and managing projects. All projects should be managed within the process established, and follow the agreed strategy (Bennet 1998). "A strategy encompassing first planning then doing, in a focused set of sequential and progressive phases, must be in place" (Wideman 2003).

Project Management Institute (PMI) in the book the "Project Management Body of Knowledge" (PMBOK) suggests the following model by using four standard processes which are Initiation, Planning, Execution and Closure. Table 3.2 shows the flow of information between these standard processes. The controlling processes have a two-way information flow. As presented in Figure 3.8, there is a feedback of information back to the controlling processes as a reaction from the execution processes. This model operates by using a feedback control automation system. When the controlling processes ensure that the project is finished, the closing process is activated automatically to proceed to the next phase which is the project termination (PMI 2003).

	Project Management standards
1	Project Integration Management
2	Project Scope Management
3	Project Time Management
4	Project Cost Management
5	Project Quality Management
6	Project Human Resources Management
7	Project Communications Management
8	Project Risk Management
9	Project Procurement Management

Table 3.2 PMI PMBOK project management standards

Source: Adapted from PMI. (2003). *A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2003 Edition.* Project Management Institute.

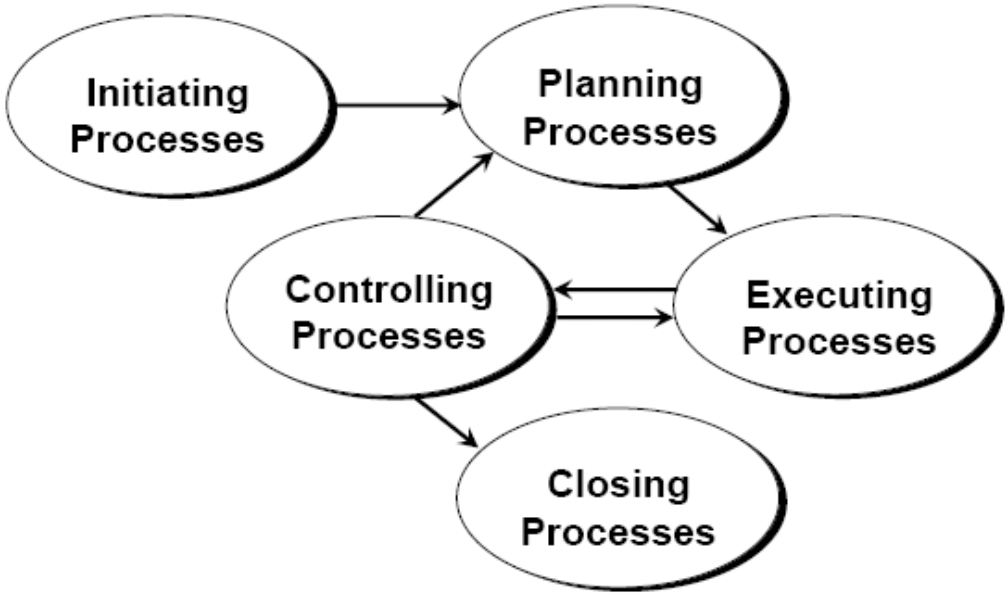

Figure 3.8 Links among processes of Project Management

Source: PMI. (2003). *A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2003 Edition.* Project Management Institute.

Initiation is the most important stage which determines the nature and scope of the business decision. If this stage is not performed well, it is unlikely that the project will be successful in meeting the business's needs. The key project controls needed here is an understanding of the business environment and making sure that all necessary controls are incorporated into the project.

In this stage a project's scope definition is required in order to take future project decisions and confirm or develop common understanding among the stakeholders. As the project progresses, the scope statement may need to be revised or refined to reflect approved changes to the scope of the project.

Similarly, a feasibility study must be undertaken before the real work of a project starts. It is an analysis of possible alternative solutions to a problem and a recommendation on the best alternative. The feasibility study must review six areas which are the following: Economics, Technical, Schedule, Organisational, Cultural, and Legal. Additionally, a "Risk Management Plan" (RMP) must be prepared to foresee risks, to estimate the effectiveness, and to create response plans to mitigate them.

Figure 3.9 shows the overlaps between the project management processes. The activity progress of processes is displayed through the time axis. The most effort is given in the implementation phase by using the maximum control. Re-planning is applied continuously as

a corrective activity. Important effort is required in order to be active during the entire progress of the implementation phase up to the termination of the project. Substantial effort is required for the planning process, up to the closing phase of the project as well as in order to finalize any additional changes that should be implemented before the closure of the project. (PMI 2000).

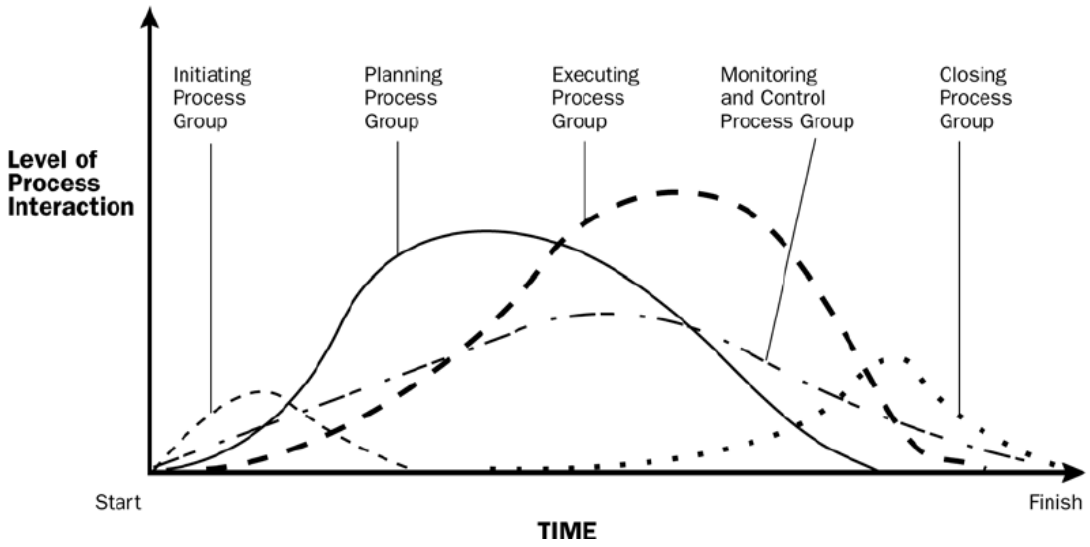

Figure 3.9 Project Management processes overlapping

Source: PMI. (2003). *A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2003 Edition*. Project Management Institute.

3.5 Classification of projects

There are four basic routes for the classification of projects. These are 1) geographical location, 2) industrial sector (Standard Industrial Classification System), 3) stage of the project life cycle and 4) product of the project.

	Type of Project
1	Administrative
2	Construction
3	Computer Software Development
4	Design of Plans
5	Equipment or System Installation
6	Event or Relocation
7	Maintenance of Process Industries
8	New Product Development
9	Research
	Other

Table 3.3 Project types according to produced product

Source: Adapted from PMI. Robert Youker. (1999). Paper: *The difference between different types of projects*. The Project Management Institute (1999) Conference in Philadelphia, Pa.

The most important and the most useful breakdown is by type of product or deliverable or performing a maintenance turnaround (Youker.1999). Projects can be classified according to the product they produce in nine basic types, as they are illustrated to Table 3.3.

3.6 Project management models and development life cycles

The Project management life cycle theory can be divided into a) theoretical models and b) structured methods. Regardless of the methodology applied, the project development process will have the same necessary stages: initiation, development, production or execution, and closing/maintenance. This study will be particularly involved in carefully examining and finding out how the relationship is being established between an executive organization decision and the expected set of the preferred project management methodology.

Basically, there are two dominant models in project management, the Waterfall and the Spiral. Most of the other models are variations of the Waterfall model (Figure 3.10). In turn the Waterfall model adopts a stage-by-stage approach with each stage being completed once

only and a new stage starting only on completion of the previous one. (Cadle *et al* 2001). The Waterfall model is an enforced discipline approach. Testing is inherent to every phase and it is characterized as a documentation driven model. Nevertheless today business projects rarely follow its sequential flow. This is due to the inherent problems associated with its rigid format. Therefore it only incorporates iteration indirectly, thus changes may cause considerable confusion as the project progresses. However the waterfall model has difficulty accommodating the ordinary uncertainty that exists at the beginning of the project. For example in a software development project, the interested customer only sees a working version of the product after it has been coded. This may result in disaster if any undetected problems are precipitated to this stage. This model's obstacle can be perceived as a correlation variable of strategic decision and implementation action.

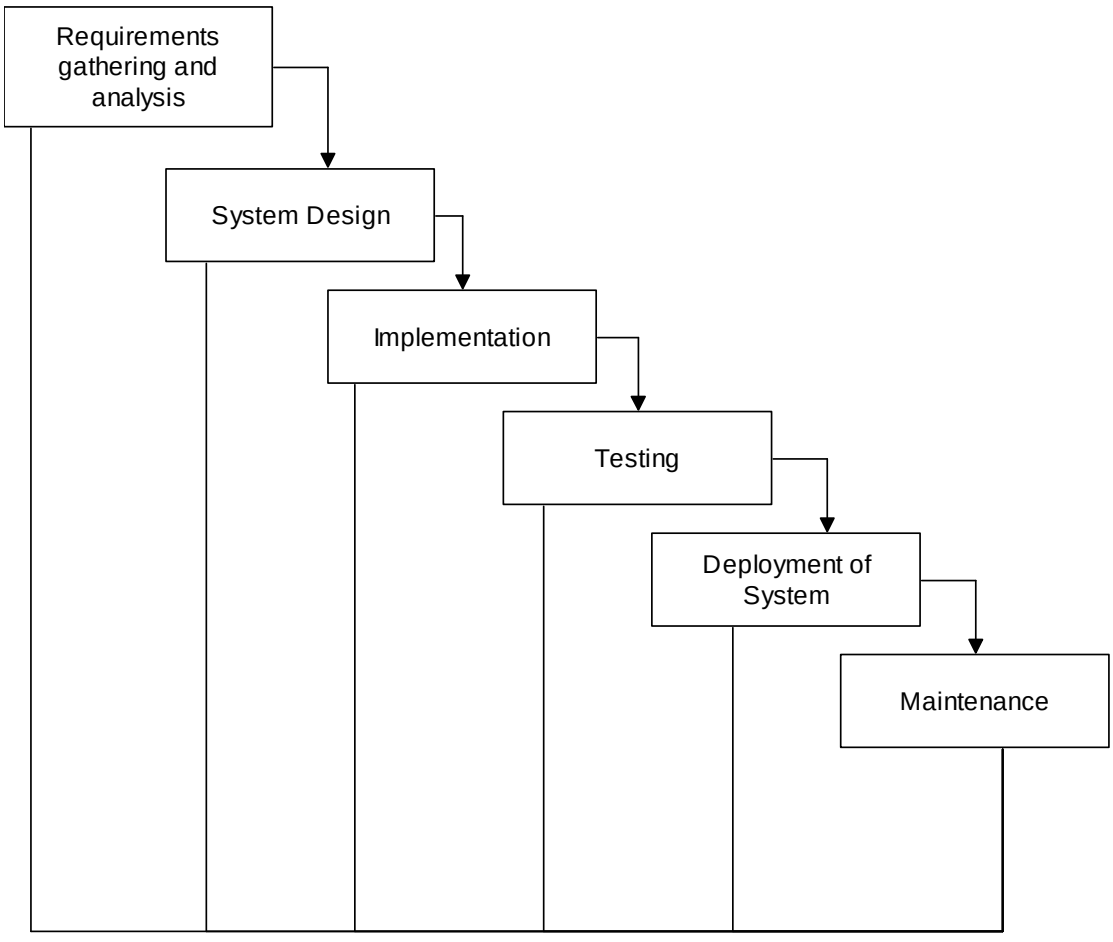

Figure 3.10 The Waterfall model
Source: Cadle et al. (2001). *Project Management for Information Systems*. Financial Times, Prentice Hall

3.7 Value and risk management

Value management consists of the integration of proven and structured problem-solving techniques known as value methodology. Failure to estimate the value status of a new project causes an unstable situation that has led many organizations to a project downfall. Every time a new project is being prepared, or an existing project needs improvement, the subsequent solicitation of value management should be considered. When a project is not evolving according to the plan, or when one of the project parameters or objectives is not achieved, value management techniques are applied to bring it back on track. Ideally, value management should be completed in the very early stages of a project when a business commitment has not yet been created. This allows value to be operated to its greatest potential: to clearly identify the demanded behavior and functions of the outcome/project. If this is not possible, it is still feasible to use value management very effectively at any stage of the planning or development phases of a project.

On the other hand, Earned Value Management (EVM) is another project management technique that measures forward ongoing progress objectively. EVM has the unique ability to combine measurements of technical performance, schedule performance and cost performance within an individual integrated methodology. EVM brings an early warning of performance problems while there is crucial time for remedial action. This is an important process during project initiation.

There are two key benefits of applying value management. The first and the most important is the official participation of all of stakeholders by absolutely providing greater consensus about the prime agreed objectives of the project and increases the chances of meeting their expectations. Secondly, the overall choice of the right direction of remedial action has been based upon a rigorous assessment of the possible solutions, to ensure that the most cost-effective requirements of the project have been met. (Cadle *et al* 2001).

Simultaneously, risk management is implemented to prevent excessive impact costs, reduce crisis management, optimize utilization of insufficient resources, and appropriately transfer risks. Self-insuring risks are part of risk management. Risk management, though, is a rather simple proactive process that can be integrated smoothly into the value management study. Risk management integration can improve the impact of value proposal implementation by making the customer aware of potential risks and solutions to avoid or mitigate them. Risk management is an essential function of project management and therefore, it is beneficial to include risk identification and analyse procedures in the value management process. Benefits of this process include: opportunities for minimizing impact costs, increased possibility of

achievement for project completion, lower occurrence of quality defects, better control of scope deviation, optimization of resource utilization, and overall added value. (Thiry 1997).

3.8 Project management influencing factors

From another point of view, a business project is influenced by many factors as it involves consultants, contractors, specialists, the staff of the organization and the project control team itself. According to the Organisational Project Management Maturity Mode (OPM3 2003), introduced by PMI, the organisational project management conceptis divided into three sections, which are Project Management, Programme Management and Portfolio Management. These concepts comprise factors, illustrated in Table 3.4, that will be evaluated as to what level they are influencing the link between strategy and project management.

Strategic influence factors
Type of organisation context and Business Model used
Organisational Competitiveness
Organisation Communication (Internal & External)
Organisation Sector
Capacity of organisation
Organisation Financial status
Organisational knowledge
Organisation Bureaucracy issues
Human factors affection
Legal factors affections
How Portfolio & Programme Management used
Feasibility study process
The projects types
Project management Models used
Project management Processes used (According to PMBOK)
Project Risk Management
Project's Value Management
Project Scope Management
Project controlling
Project Solicitation and motivation
Time Quality & Cost (TQC) factors
Feedback level from result oriented control

Table 3.4 Key linkage strategic influence factors

Source: PMI. (2006) OPM3. PMI. *Programme management Standards* 2006.

Traditionally, the project management context has triple constraints which are scope, time, and cost. This is also referred to as the Project Management Triangle, where each side represents a constraint. One side of the triangle cannot be changed without impacting the others. A further refinement of the constraints separates product 'quality' or 'performance' from scope, and turns quality into a fourth constraint. The time constraint refers to the amount of time available to complete a project. The cost constraint refers to the budgeted amount available for the project. The scope constraint refers to what must be done to produce the project's end result. These three constraints are often competing constraints. Increased scope typically means increased time and increased cost; a tight time constraint could mean increased costs and reduced scope, and a tight budget could mean increased time and reduced scope. (Davis et al 1994).

Actually, many writers have stated that Time, Quality and Cost are the three variables that matter in Project Management. Everything else can be summed up within these three words. In Figure 3.11, the tension between time, quality and cost is illustrated in the first diagram. As more of any one element is demanded, lines to the other two become longer (stretched). Thus in the second diagram a decision has been taken to reduce the timescale, shortening the time 'thread'. This results in increased pressure on budget or quality, as their threads are lengthened. The project manager must maintain the appropriate balance between these three elements.

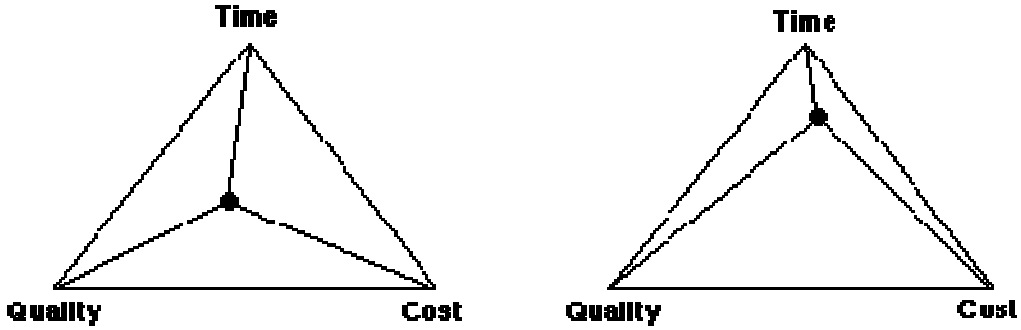

Figure 3.11 Project variables

Source Davies Peter, Brailsford Tim. (1994). Guidelines for Multimedia Courseware Developers in Higher Education University of Nottingham.

From another point of view, Shenhar's (1999) strategic project leadership (SPL) framework identifies the project management elements that organizations should align with business strategy, elements such as project strategy, spirit, organization, process, and tools, as shown in the Figure 3.12a.

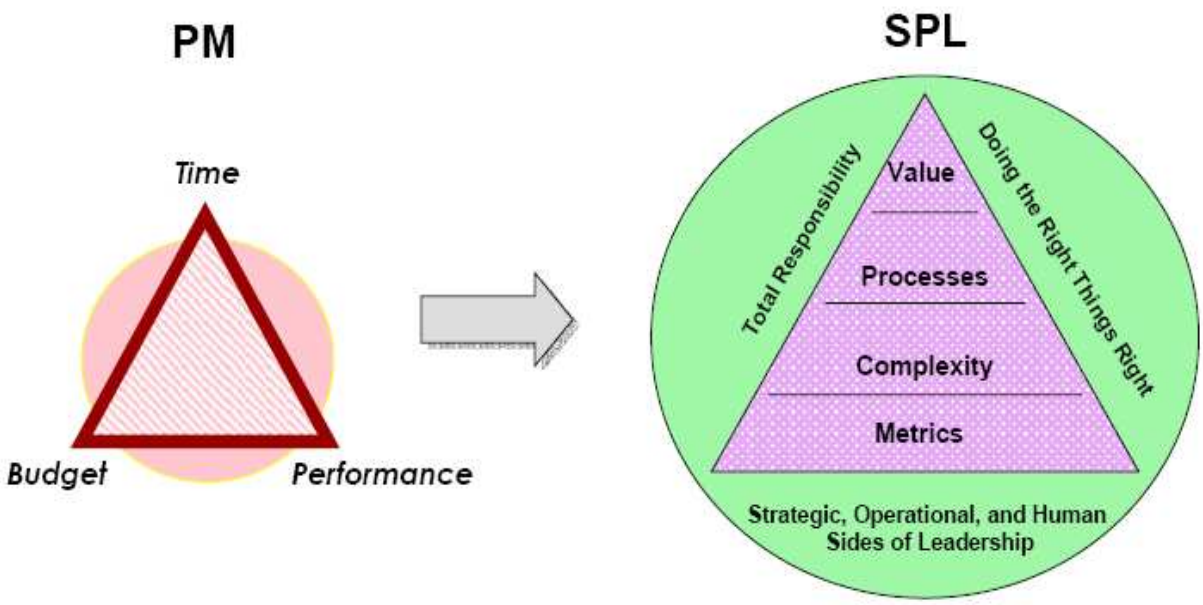

Figure 3.12a The Strategic Project Leadership

Source: Shenhar J Aaron, (2005), *The Project Management Excellence Seminar*, Stevens Institute of Technology, The Technological Leadership Institute Hoboken, NJ 07030

Similarly, there are four influencing factors. These are Human's safety, Time, Quality and Cost. These are related and influence each other during the project implementation. This means for example, an unexpected extension of time duration of a project will affect the total cost. Another example is an unexpected requirement from marketing department (for competitive reasons of course), to change the design of a product. This will affect the total project's cost, too. On the other hand if there is not sufficient budget to cover such a change, this will affect the quality of the final product. Human Safety as an inarguable project factor is influencing all other factors. The relationship between these factors is illustrated in Figure 3.12b.

Keys	
C&Q :	Cost and Quality
C&T :	Cost and Time
Q&T :	Quality and Time
TQC :	Time - Cost - Quality
HS	Human Safety

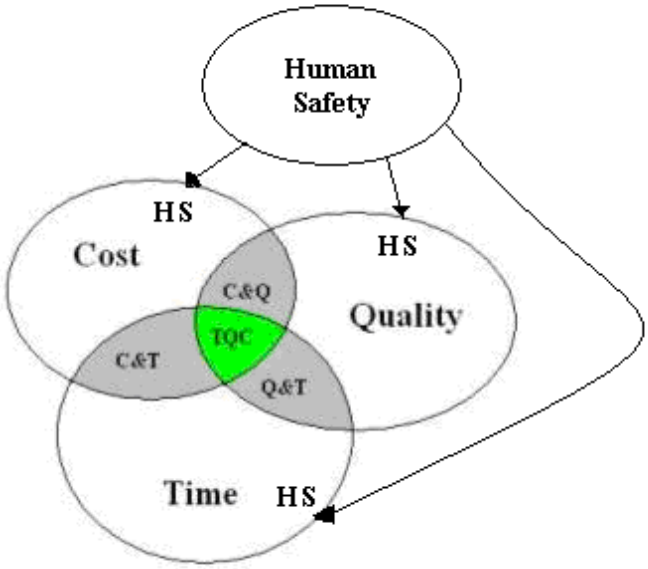

Figure 3.12b Project relationship of TQC factors
Source: G. Vassilopoulos O.U. (2003). *MSc Thesis: Strategic model for the implementation of IT projects in a financial organisation.*

Three main influencing factors are considered as "Stealers" and are the following:

1. Time Increase Factors (TIF), producing delays in the normal progress of a project. In this case**,** obstacles occurring in the normal progress of a project management process produce time delays, so increase the total project's duration.

2. Quality Reduction Factors (QRF), reducing the quality of the final product or service. There must be a separation between the quality of delivered product or service and the quality of project management processes.

3. Cost Increase Factors (CIF), increasing the total cost of the project. It is very difficult to identify the "Cost Increase Factors" from the beginning of project implementation. The prevention of total cost tolerance is based on known project subjects and can be achieved by a deeper analysis of a project's details. For example, if during implementation of a project an unexpected change of the requirements or the plans happened, this may increase the total cost of the project (Vassilopoulos 2003).

Human Safety factors (HS) must be considered seriously as to how they influence the human resources involved in the implementation of a project. The time, cost and quality triangle usually have the human safety factors as a fourth constraint for projects outside

the information technology area. For example this is happening in construction projects (safety of construction workers) or pharmaceuticals (safety of customers and patients too). Organisations must produce accurate information on demand in order to comply with government regulations from environmental protection agencies and occupational health and safety agencies. These regulations affect many areas of the organisation including project management.

3.9 Research questions and objectives

Corporate strategy is created from an organisation's mission, goals, and objectives. How is this strategy linked with implementation and results? There are two main question frameworks, a) strategic questions and b) research questions.

The questions include:

A. Strategic Questions

1. What is the relationship framework (identification of links), between business strategy and project management?
2. Which are the influences of the key strategic factors on the relationship (between strategy and project management)?
3. What are the benefits of identifying the gaps in this relationship?
4. How can a strategic model be constructed as a consequence of this research?

B. Research Questions

1. What are the key links and what are the relationship issues between strategy and project management?
2. How are these issues affecting this relationship and at what level?
3. What are the current gaps between business strategy and project management?
4. What influences emanate from the organisational strategy context?
5. What influences emanate from the organisational project management context?
6. How can a modern organisation develop a project based strategy?

Answers to previous questions will be given by the analysis of the collected information which will be extracted through the research and investigation of current literature and organisations' environments.

4. Methodology

There are plenty of research methodologies and methods suggested from many writers. This chapter rationalizes the methodology that will be adopted on this research.

4.1 Proposed research methodology

This study will be based on a critical review of current theories integrating information gathered from practical research in business strategy and project management contexts in organizations. Research methods will include: interviews, focus groups and questionnaires.
The conceptual framework and the project influence factors referred in the preliminary literature review section will be expanded and formulated. The intension is to use them as the central structures in the extensive literature review and for the formulation of the qualitative research interview survey subjects and the quantitative research questionnaires.

This proposal comprises of:
A) An interpretive deductive but also an inductive critical analysis of literature (Hurt 2005). In this approach is assumed that the knowledge of fact is achieved only through social constructions such as language, consciousness, shared meanings, documents and other artifacts (Walsham 1993). A key task using the interpretive research is the seeking of meaning in the conceptual framework in order to observe how the current situations emerged (Klein *et al* 1999). On the other side, positivist approach states that the only actual knowledge is scientific knowledge and such knowledge can only come from positive affirmation of notions through particular scientific method. (Hacking 1981). This means the affirmation of current project management theories by using a strict thorough analysis.
As a consequence, there will be the composition of the primary conceptual framework using a critical review in the related literature. The notable research subjects of the conceptual framework will be the following: a) Vision and business strategy, b) Portfolio management, c) Programme management, d) Project management processes, e) Influencing factors (Table 3.2). The aim will be to identify the current strategic link factors by a critical literature review, in order to construct the questionnaire and arrange the interviews with organizational managers. Questionnaire and surveys will be based on findings and their reciprocally linkage.
This literature review will be covered by books, articles, papers, journals, publications, various internet sources, organizational documentation, polices & procedures and other sources which will be useful for the research. There will be an interpretive, (deductive but also an inductive where and when this is required) review of information on subjects of business strategy and project management elements (processes, influencing factors and variables). This means how the conceptual framework objectives rose by seeking the meaning

in depth of literature and real business world (Interpretative approach). It is required an extensive research of latest theories on business strategy and project management certainly containing any previous preceding theories (Popper 1965). The exploration of theories will be performed by clarification of outcome in association of what knowledge conclusively encompassed or rejected (Kuhn 1975). A multi pronged approach will be adopted in order to use a different research approach when is required. This will add more value in the literature research results. (Feyerabend 1975). Theories will be Interpreted and criticized from various points of consideration by using different stands of sub-audition (which is a different perception of deeper meanings). (Heinemann 1938).

The multi-pronged or triangulation approach theorized as the most prudent way to approach the filtration and analysis of literature information. This is the modern thought of “Research – Decide – Execute – Research” (Figure 4.1), which definitely admits perpetual recycling for the harmony of generic ideas and effects (Magnissalis 1996).

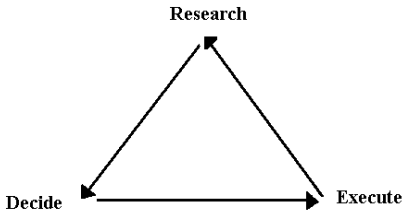

Figure 4.1 Perpetual recycling of research

Source: Magnissalis.(1996). *Creativities*. Interbooks.

B) Physical observation of organisations (participant observations, review of documents, panels and focus groups), for in-depth understanding of behaviors and social artifact content analysis. (the Qualitative approach). The effectiveness of observation and interaction is that the researcher may observe the perceived views of participants, which may indicate discrepancies between what they state (and often believe) should happen (the formal system) and what actually does happen, or between unusual aspects of the formal system; in contrast, a one-time survey of participants answers to a set of questions might be quite consistent, but is less likely to show conflicts between diverse aspects of the business diverse environment or between conscious representations and behavior (Kaminski 2004).

Special consideration will be given to unobserved business situations which are highlighted through discussions during the investigation of organisational practices. It is reasonable to believe that the findings about the "unobserved" situations are true. The aim is to reveal any unobserved business situations related to the research subject identified during the interviews (Leplin 1984), (Kuhn 1970).

The ethnographic-phenomenological approach is recommended by most writers in this study area. For the development of document 3, formal interviews will take place, in order to achieve detailed research information of tacit knowledge and experiences from organisations' representatives. The contacted companies will be middle size staff (200 – 1000) and large size (over 1000), through the contacts of PMI worldwide chapters. The PMI members will be contacted via respective e-mails and phone calls.

The plan for the In-depth interviews will contain target focus groups from business environment in Greece and if possible from other countries, too. The main aim of the focus groups to be conducted will be to gather qualitative data by exploring extensively their Strategy and Project Management activities.

Focus groups and in-depth interviews will be conducted through the following contact channels:

1. Contacts through PMI Greek chapter members.
2. Greek unions of manufacturing, service and commercial organisations
3. Contacts through PMI (USA) list of international members.
4. Other channels of contacts that will be planned during the progress of research.

The aim is to collect responses of at least 40-50 interviews, from representative business sectors. Participants will be selected from each organisation, targeting people in roles related to the research subject and stages of service in different types of organisations. There will be a categorization in 3 focus groups: upper management, middle management and project managers.

Because of the nature of reaction of current organisations and the unpredicted situations of people but also the competitive market, this direction of investigation of phenomena and experiences of interviewed representatives will help to the immediate collection of important knowledge. Interviews will intend to seek and gather all required information on the research subject as deep as possible.

Using relevant discussion questionnaires, better and tangible results can be obtained. It is strongly believed that confidential interviews with executives will be a more reliable method for the collection of information, because according to the psychological mixed reaction of different people (from a general approach), it is more easy to express their opinions when they talk rather than when they write down the answers (Saunders et al 1998). This method will be applicable only in local organizations' contacts. Also an online electronically (Internet web page), survey questionnaire will be available for those who will be impossible to engage

to the research interviews through personal contact. This is preferred because it will provide immediate results with the collection of tacit knowledge and important applicable information, from business representatives' experiences faster than the personal interviews.
In real business world, the relationship between business strategy and project management has many unclear points and discourses, so is formally recommended to use a survey in order to acquire all those hidden tacit knowledge and experiences from business and project managers. The interview-questionnaire development will be based on the essential strategic key factors, conceptual framework influences and other issues of practical project management activities. There will be an observation by theorizing, gathering information and inquiring in the middle of an ongoing implementation of strategic plans through project management process. This will be applied on those business processes and transformations of information from reflective knowledge of previous practices as they are formulated to an active moment-to-moment (Action research). Relevant information will be collected and assessed, classified and filtered. Also, a theoretical analysis of recent literature will continue to be performed. The measures of the study will be based on two primary quality factors. First, are the reliability and the scientific trustworthiness of the obtained information, but also their repeatability behavior. Second, are the validity and the advantage of the research methods but also as well as the quality and accuracy of the collected information.

C) For the development of document 4, a quantitative research will be used as well as because it will provide significant information for the construction of the model. A survey type questionnaire will be designed in order to cover the relevant investigation requirements for exploration of business strategy and project management contexts. This is important because "quantitative approaches have one reality created from dividing and studying parts of an entity". (Becker 1996).

Various contact methods will be used such as e-mail, postal questionnaire, web based questionnaire, self-completion by local visits, telephone contacts, and liaison help researchers. There will be structured interview schedules with organisations representatives. The questionnaires will be grouped by using the stratification method into relatively homogeneous subgroups before starting sampling. In this random sampling technique, the whole population will first be divided into mutually exclusive subgroups or strata and then units will be selected randomly from each stratum. The strata segments will be based on some predetermined criteria such as the business sector type of business interest, the type of projects and company size. It is important that the segments will be as *heterogeneous* as possible in order to select an independent, simple random sample from each subset (Lewis-Beck et al 2003).

The target will be a collection of at least approximately 100-150 questionnaires from representative organisational sectors. The results will be analysed using statistical process software most useful for this research analysis, such as SPSS, Excel, NCSS, StatTools for Excel, SigmaStat. Conclusions and identification of new points of interest to be used for further research will be revealed by the previous analysis.

Quantitative research will be performed by implementing the following steps:

1. Collection of empirical data by using the related questionnaires.
2. Modeling and analysis of collected information
3. Evaluation of results according to quantitative analysis methods.

D) An integration analysis will be applied by comparing theory and practice for the development of document 5. This analysis will appear with an in-depth study by sifting through all the data, discarding whatever will be irrelevant and bringing together what seems most important (Eisenhardt 1989). An articulation of information from literature review analysis will take place, which will help to the construction of the final model of this research. The framework of this model will be emanated from a descriptive analysis of consolidation and integration of current theories and practical research findings. The model's framework will be developed and presented with flow charts and will be examined by creating strategic link procedures.

The proposed project plan for the implementation of this research is illustrated in Appendix 3.

5. Outline for Documents 3, 4, 5 and 6

5.1 Research Strategy.

The requirement of adopting a research strategy has been stated from many writers including Fisher (2004), (Saunders *et al* 1998), (Hakim 1987). Research is a process of discovering new ideas, actively thinking about and working with them. A research strategy is a plan of actions that gives direction to the endeavors and supports to conduct research systematically rather than haphazardly. For example, Cornel University Library proposes seven basic steps for the research process as illustrated in the following Table 5.1.

The Seven Steps of the Research Process for simple and effective strategy
Step 1: Identification and development of the topic
Step 2: Find background information
Step 3: Use catalogs to find books and other media
Step 4: Use indexes to find periodical articles
Step 5: Find internet resources
Step 6: Evaluate findings
Step 7: Cite findings

Table 5.1 The Seven Steps of the Research Process

Source: Michael Engle. (2006). Olin and Uris Libraries. Cornell University

This research can be described as an active, diligent, and systematic process of inquiry aimed at discovering, interpreting, and revising facts, which will produce a greater knowledge of events, behaviors, theories from business and project management contexts. In general, research is a certain structural process, depending on the subject. The following steps are usually part of most formal researches: Formation of the topic, hypothesis, conceptual definitions, operational definitions, gathering of data, analysis of data, conclusion, revising of hypothesis. This means in other words, topic selection, literature review, concept, theory formulation, conducting the study, information gathered analysis, state the findings and conclusions (Mantas 1994).

According to the previous approach and definitions, the five documents that will be developed during the research progress are intended to have the following structure:

5.2 Document 2

Document 2 will deal with the critical literature review and the development of conceptual framework. Generally, the literature review will be approached as a logical flow of ideas with relevant references and with consistent and appropriate referencing. This requires proper use of terminology and an unbiased, comprehensive view on the researched subject. The conceptual framework of this research will be constructed through the critical analysis and appraisal of literature. This information will be collected by scanning a set of useful articles, books, internet and other sources, which first have been validated against the research subjects.

The literature review will be related directly to the research questions and will synthesize results into a summary of what is and is not known. It will identify extents of controversy in the existing literature and finally will formulate further questions that need additional research.

The target is to consolidate and integrate current business strategy and project management theories based on current existing literature in order to cover the main research subjects and questions. This shall be obtained by collection of the most essential information and theories that correspond to a practical approach, too. Also through by identifying and defining the characteristics of the relation of Business strategy and project management, as it is stated by various writers will give different views for analysis. Moreover, during this progress, critical reviewing and evaluation of the contributions caused in this research area will take place. As Colin Fisher (2004) mentioned, a comprehensive literature review is one of the most essential and preliminary steps within the research process.

5.3 Document 3

The composition of document 3 will be based in the outcomes from the qualitative research approach. In this investigative report the relevant research subject's complexities will be explored with an interpretive method and the crucial value of the research questions will be addressed. Document 3 will be a comprehensive report on an interpretative, non-survey based research. This approach involves the study and structural observation too, of Business Strategy, Portfolio, Programme and Project management as a forthcoming practice of initiation, planning, execution and closure. This will be officially applied to the real world of the organisation environment.

An interview questionnaire will be used to collect applicable tacit knowledge, to discover all the critical factors as for example the "Time Quality and Cost" (TQC) factors that affect project progress, and recommend various solutions ideas emanating from business sponsors and project managers' experiences. The structure of this document will contain: a) a discussion of the research questions in relation to the ethnographic methods and the way that they used, b) an analysis of collected information with conclusions and issues with opportunities for further research and c) an identification of possible implications of the research findings to the organizational practice.

5.4 Document 4

This document will be a report on survey based research and investigation methods that will be applied using a questionnaire. The questionnaire will be designed in order to collect a valid sample from the target organisations, in order to ascertain the views of a representative selection. Also it is important to state that the questionnaire will be further developed once the literature review is completed and once the results of the focus groups and interviews are conducted.

The focus will be on revealing all those elements that are related to the research subject, through a mixed approach analysis (qualitative and quantitative) on data sets which are collected by using questionnaires. This will be achieved by using a primary content analysis followed by a secondary analysis as well. The quantitative analysis will also perform a variable categorization using the most appropriate statistical methods required in this scope. It is suggested that the qualitative analysis perform a triangulation cross to quantitative analysis and an assessment for all information collected through non-survey, observation and questionnaire collection methods, too.

5.5 Documents 5 and 6

The development of Documents 5 and 6 will be the final phase of the research. Document 5 is suggested to be developed simultaneously and in parallel with documents two, three and four. Also there will be further updates on the primary critical literature review by reconsideration of the conceptual frameworks. An extensive analysis will be performed on the selected empirical materials and tacit knowledge gained during research implementation. The critical assessment of knowledge which is developed by the analysis of intellectual and practical findings will be used in order to conclude these documents.

The main research subject of interest "The link between Business strategy and Project Management" will be structured and argued as a strategic model, according to the findings

from the extensive research analysis. Finally, the Document 6, a reflective journal will be produced according to conclusions of Document 5.

6. Issues Arising: research ethical Issues and expected outcomes

6.1 Research ethical issues

The current research from an ethical standpoint will be conducted in accordance with fundamental and widely accepted principles, such as:

- Beneficence - 'do a positive good'
- Organisations and Participants Non-Malfeasance - 'do no harm'
- Informed Consent
- Confidentiality, anonymity and data privacy (BERA 2004)

Access to the selected organisations' data will be acquired after the permission of local and international organisations (PMI, AGSM, EEDE, and IEEE). Negotiating access will be requested from all organisations through personal or via e-mail communication.

Participants will be informed in order to understand the processes that will be engaged according to the scope of this research. Voluntary participation will be requested from the organisations and participants and they will not be coerced to re-engage if they decide to withdraw. The participants will be given the opportunity to express any issues of concern pertaining to the research documentation given to them.

Some of the interviews will be audio-taped in order to facilitate the compilation of data. The process, in which focus groups/interviews will be taped, will be highlighted at the outset of every interview and participants will be given the choice to decline.

The confidentiality and anonymity of participants' data will be assured as the norm for the ethical conduct of the research. The gathering of this research data will be done using quantitative methodology, while the disclosure of names, addresses, occupational and location details will be avoided. Anonymity will be assured by removing any such sensitive information from the study presentation. Issues from this research which may include sensitive or confidential information, will be dealt with by gaining consent from the participated organisations.

All material gathered during this research will be treated as confidential and will be stored by a secure method. It will be made clear to participants that first, information will be shared with other academic researchers under strict terms and conditions, and secondly, that anonymity will be exercised. It is important to demonstrate this confidentiality agreement by obtaining written consent from all participants in order to use the information for the present

research. (Further information on ethical issues can be found in the guidelines published by British Educational Research Association (BERA). 2004. Revised Ethical Guidelines for Educational Research. ISBN 0946671265).

6.2 Personal outcomes

The expected personal outcomes are the following:

- Broadening of knowledge on a subject that has personal and professional interest.
- Development of personal skills in research methodology and methods by obtaining useful research experience that will be used for similar research projects in the future.
- Contribution of a significant piece of research on project management to author's financial organisation.
- Enhancement of personal intellectual and academic abilities for further development and professional occupation.

Organisational and managerial outcomes

Organisational outcomes

It is hoped that the expected organisational outcomes will be the following:

- A strategic model that emanated from a different research approach on Project Management and Business Strategy.
- The knowledge of current status of the correlation between Strategies and Project Management.
- Facilitating future amendments on business strategy and the development of more qualitative communication channels with project management context.
- As the author is self financed the organisation will take the advantage of a high quality research conducted at no cost.

Researcher's outcomes

It is hoped that the future researchers will benefit by the following outcomes:

- A different approach for the linkage of Business strategy and project management.
- An evaluation of existing and previous research in the subject area.
- Obtain new research opportunities from the hidden subjects that will be revealed by this research and they are requiring further investigation.

Summary

Corporate strategy is originating from the organizational mission, goals and objectives. The main aim of this study is to determine how strategy is linked to implementation of business projects, by the prioritization through portfolios and programme management. In this document, the importance and the key aim of research is demonstrated through the proposal of a deep investigation on the linkages and gaps between the organisation strategy and project management. Assessment of business strategy in practice and the relationship with project management phases, from initiation, planning, execution through to closure is to be achieved. The most critical factors such as Human Safety (HS), Time, Quality and Cost (TQC) which are affecting the progress of a project will be studied. A preliminary literature review on business strategy and project management theories, by showing how this theory can be analyzed by utilization of literature is performed. Different approaches of influencing factors, PMI standards and business strategy trends, are additionally referred to. Strategic and research questions are also asked. The proposed methodology through the presentation of positivist, phenomenonologist, realist, and interpretative approaches is rationalized. The research project plan is illustrated in Appendix 3. The research strategy to be applied is explained and the development of the five documents is presented. The research ethical issues are defined and the ethical processes that will be adopted are explained. The personal, organisational and managerial outcomes are presented in the final chapter of this document. The research conclusion is estimated to be the development of a strategic model that will be efficient in improving the relationship between business strategy and project management. It is hoped that this model will provide a strategic direction towards the elimination of influencing factors and consequently increases the degree of project management quality and lead to successful enforcement of business projects.

Appendices

Appendix 1. Project failures

Standish Group research showed a staggering 31.1% of projects will be cancelled before they ever get completed. On the success side, the average is only 16.2% for software projects that are completed on time and on budget. In the larger companies, the situation is worse, only 9% of their projects come in on time and on budget. Further results indicate 52.7% of projects will cost 189% of their original estimates. Even when these projects are completed, many are no more than a mere shadow of their original specification requirements

According to the Standish Group the projects classified to three types which are successful, challenged or impaired.

More analytical:

1 Type 1 or project success: The project is completed on time and on budget, with all features and functions as initially specified.

2 Type 2 or project challenged: The project is completed and operational but over-budget, over the time estimate, and offers fewer features and functions than originally specified.

3 Type 3 or project impaired: The project is canceled at some point during the development cycle. Figure 1.1 shows that overall, the success rate was only 16.2%, while challenged projects accounted for 52.7%, and impaired (cancelled) for 31.1%

Overall, the success rate was only 16.2%, while challenged projects accounted for 52.7%, and impaired (cancelled) for 31.1%. The latest project implementation statistics are illustrated in Table 1, Table 2, and the survey results statistics in Figure 1.1. (Standish Group 2000), (Shenhar 2005).

Year	FAILED	CHALLENGED	SUCCEEDED
1994	31%	53%	16%
1995	40%	33%	27%
1995	28%	46%	26%
2000	23%	49%	28%
	1 of 4 projects have total failure	2 of 4 projects delivered with time delay cost increment and lower quality	Only 1 of 4 projects delivered on time, on budget & on specs

Table 1. Latest statistics for project implementation

Source: The Standish Group International Inc. (2000). *Extreme Chaos.* URL: http://www.standishgroup.com

Standish Group 2000 – 28% success
Standish 2003 – IT projects $82B out of $382B were a waste
Shenhar 1996 –Overrun in 85% of projects (60% B, 70% T)
Cooper 1993 – Commercial Success only in 1 of 4 projects
Bull Corp 1998 – 75% of projects missed deadlines
Rand Corp 1988 - 88% Cost overrun, Only 1/3 were profitable

Table 2. Project performance studies

Source: Shenhar J Aaron, (2005), *The Project Management Excellence Seminar*, Stevens Institute of Technology, The Technological Leadership Institute Hoboken, NJ 07030

The results were based on what the Standish Group defined as "key findings" from our research surveys and several personal interviews. The sample included large, medium, and small companies across major industry segments, e.g. banking, securities, manufacturing, retail, wholesale, heath care, insurance, services, and local, state, and federal organisations. The total sample size was 365 respondents and represented 8,380 applications. In addition,

The Standish Group conducted four focus groups and numerous personal interviews to provide qualitative context for the survey results.

For purposes of the study, projects were classified into three resolution types as it is illustrated in figure 1.1.

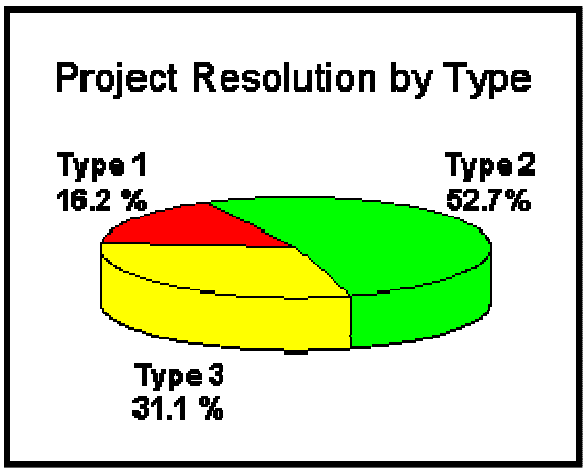

Figure 1.1 Standish Group survey results

Source: Standish Group International. (1998). *Chaos a recipe for success.* Standish Group publications.

Appendix 2. Definition of a Model

A model is a manner of representation of something that cannot be observed directly, either because it has not yet been constructed or because it is abstract. It is a hypothetical description of a complex entity or process. A method of plainly expressing relationships when measuring the real world is impractical. It is an abstraction or simplification of reality; a subset of the most essential components of the system being modelled. A model is a simplified description of reality used for prediction and control purposes helping to improve our understanding of the behavioral characteristics of reality studied in a more efficient way than if it had been observed directly. This basically means a representation of a group of components of a process, a system, (information, activities, relationships, and constraints), or subject area, generally developed for understanding, analysis and improvement.

Models may be conceptual or mathematically expressed. The conceptual model describes the general functional relationship among components of a system. Generally, they are displayed diagrammatically by including charts and figures that present information visually. (Wideman 2003)**.** For example, a business model is a conceptual tool that contains a big set of elements and their relationships and allows expressing the business logic of a specific organization. It involves both strategy and implementation. (Osterwalder, et *al* 2005)

By another approach, the categorization of models can be presented with the following types: The mental model, which is the image in people minds when a subject discussed. The tacit mental model is involved on how the world can be seen and to be so deeply ingrained and influencing on how to take action and even inhibit acceptance of new ideas, or new models, however well presented. The physical model, which is a three-dimensional model that may or may not be working mechanically but do demonstrate shape and physical relationships, such as in structural and architectural models. A physical model is used in various contexts to mean a physical representation of some thing. That thing may be a single item or object (for example, a bolt) or a large system (for example, the Solar System). The mathematical model, which is expressed as formulae, such as financial or research models that explain how certain input variables relate to an outcome variable. In mathematics, model theory is the study of the representation of mathematical concepts in terms of set theory, or the study of the models which underlie mathematical systems. It assumes that there are some pre-existing mathematical objects out there, and asks questions regarding how or what can be proven given the objects, some operations or relations amongst the objects, and a set of axioms.

The Business Modeling method is an advanced technique to model business processes. Business models provide directions of expressing business processes or strategies in terms of business activities and collaborative behavior so we can better understand the business process and the participants in the process. Models are useful for documenting, for comprehending complexity and for communicating complexity. By documenting business processes from various perspectives, business models can facilitate managers to understand their environment. Identifying the right area to change and improve is paramount to the overall success of an organization.

Appendix 3. Research implementation project plan

According to Figure 7.1, the research is started on middle August 2006 and will be finished with the delivery of the final documents 5 & 6 during September 10th of 2009.

Some phases in the project plan are overlapping some others during the research implementation in order to earn time.

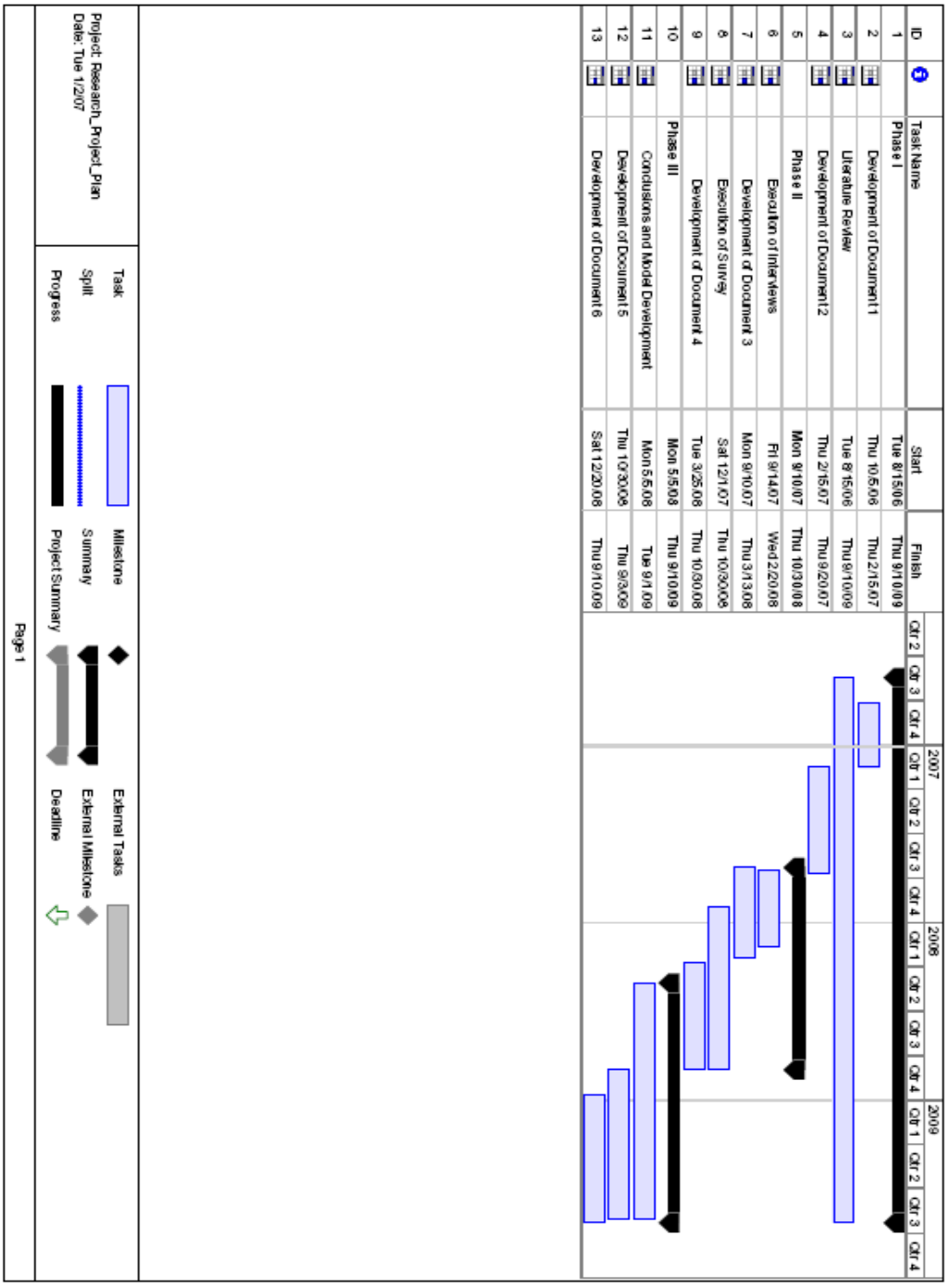

Figure 3.1 *Research project Plan*

References

Agar, Michael. (1996). *The Professional Stranger: An Informal Introduction to Ethnography*. Academic Press.

Artto, K.A. J-M. Lehtonen and J. Saranen. (2001). *Managing projects front-end: Incorporating a strategic early review to project management with simulation*. International Journal of Project Management.

Anson, Chris M. and Robert A. Schwegler. (2000). *The Longman Handbook for Writers and Readers*. Second edition. New York: Longman.

British Educational Research Association (BERA). (2004). Revised Ethical Guidelines for Educational Research. ISBN 0946671265.

Bakalis, Nikolaos. (2005). *Handbook of Greek Philosophy*: From Thales to the Stoics Analysis and Fragments, Trafford Publishing ISBN 1-4120-4843-5.

Becker, Howard S. (1996). *The epistemology of qualitative research*. University of Chicago Press. from Ethnography and human development : context and meaning in social inquiry, edited by Richard Jessor, Anne Colby, and Richard A. Shweder.

Bennet, P. Lientz, Kathryn P. Rea. (1998). *Project Management for the 21st Century*. Second Edition. Academic Press. ISBN: 0-12-449966-X.

Blackburn, Simon. (2005). *Truth: A Guide*. Oxford University Press Inc. ISBN 0-19-516824-0.

British Standard BS6079 BSI BS 6079. (1996). *Standard Guide to Project Management*. British Standards Institute.

Business Week. (1984). Article "*Speaking informally to a group of MBA students at the Harvard Business School*" *The New Breed of Strategic Planner*. Business Week magazine. Week.17 September 1984.

Cadle, James & Yeates Donald. (2001). *Project Management for Information Systems*. Financial Times – Prentice Hall, ISBN: 0 273 65145 5.

Charles, W. L. Hill & Gareth R. Jones. (2003). *Strategic Management: An Integrated Approach* (Fifth Edition).

Cohen, Bernard and Anne Whitman's. (1999). Isaac Newton (1687, 1713, 1726). "Rules for the study of natural philosophy", *Philosophiae Naturalis Principia Mathematica*. Book 3. The System of the World. Third edition, the 4 rules as reprinted on pages 794-796 of translation, University of California Press ISBN 0-520-08817.

Cooper, H.M. (1988). *The structure of knowledge synthesis - Knowledge in Society*, vol. 1.
Davies, Peter, Tim Brailsford. 1994. Guidelines for Multimedia Courseware Developers in Higher Education University of Nottingham.

Dinsmore, Paul C. Jeannette Cabanis-Brewin. (2006). T*he AMA Handbook of Project Management*, Second Edition. AMACOM.

Engle, Michael. (2006). *The Seven Steps of the Research Process*. Olin and Uris Libraries. Cornell University.

Eisenhardt, Kathleen M. (1989). *Building Theories from Case Study Research*. Academy of Management Review.

Fisher, Colin. (2004). *Researching and Writing a Dissertation for Business Students*. FT. Prentice Hall.

Feyerabend, Paul K. (1975). *Against Method*. Third edition. Publisher: Verso. 3rd edition (September 1993) Press. ISBN: 0860916464. (Greek version).

Forsberg, Kevin. (2000). *Visualizing Project Management.* 2nd edition. Wiley. ISBN: 047135760X.

Godfrey-Smith, Peter. (2003). *Theory and Reality* p. 184-186, 234. University of Chicago Press. ISBN 0-226-30063-3.

Graham, Robert J. and Randall L. Englund. (1997). *Creating an Environment for Successful Projects: The Quest to Manage Project Management*. Jossey-Bass. ISBN:0787903590.

Grundy, Tony. (2001). Strategy *Implementation through Project Management*. Thorogood. ISBN:1854182501.

Hakim, C. (1987). Research Design: *Strategies and Choices in the Design of Social Research*. London: Allen & Unwin.

Heinemann, William. (1938). Aristotle, "Prior *Analytics", Hugh Tredennick* (trans.), pp. 181-531 in Aristotle, Volume 1, Loeb Classical Library. London, UK.

Hussey, David. (1998). *Strategic Management: From Theory to Implementation*, Fourth Edition. Butterworth-Heinemann . ISBN:0750638494.

Hacking, I. (1981). *Scientific revolutions.* - Oxford Univ. Press, New York.

Hurt, Chris. (2005). *Doing a Literature Review*. Sage Publications. ISBN: 0-7619-5975-0.

Kuhn, Thomas S. (1962). *The Structure of Scientific Revolutions*. University of Chicago Press. Chicago IL. 2nd edition 1970. 3rd edition 1996.

Kuhn, Thomas. (1970). *The Structure of Scientific Revolutions*. 2nd Edition Chicago: University of Chicago Press.

Lewis-Beck, M. A. Bryman. T. Futing. (2003). *Encyclopedia for research methods for the social sciences*. Thousand Oaks (CA): Sage Publications.

Leplin, Jarrett. (1984). *Scientific Realism*. California: University of California Press.

Leplin, Jarrett. (1997). *A Novel Defense of Scientific Realism.* Oxford: Oxford University Press.

Lientz, P. Bennet, Rea P. Kathryn. (1999). *Breakthrough Technology Project Management*. Academic press. ISBN: 0 12 449966 X.

Kaminski, Marek M. (2004). *Games Prisoners Play*. Princeton University Press. ISBN 0-691-11721-7

Kerzner, Harold. (2000). *Applied Project Management: Best Practices on Implementation.* John Wiley & Sons.

Klein, H. K. and Michael D. Myers. (1999). *A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems.* MIS Quarterly, Special Issue on Intensive Research (23:1), 1999, pp. 67-93.

Mantas, B. Nikolas, Danou S. Anastasios. (1994). *Research Methods for disertations implementation.* Modern Publications.

Moustakas, C. (1994). *Phenomenological research methods,* London, Sage Publications.

Magnissalis, G. Kostas. (1996). *Creativities*. Interbooks.

Morris, Peter and Ashley Jamieson. (2004). *Translating Corporate Strategy into Project strategy : Realizing Corporate Strategy Through Project Management, PMI.* Project Management Institute.

Mintzberg, Henry. Ahlstrand, Bruce W. Lampel, Joseph. (1998). *Strategy safari: A guided tour through the wilds of strategic management.* Free Press (New York). ISBN 0684847434.

Nieto-Rodriguez Antonio. Evrard Daniel. (2004). *Boosting Business Performance through Programme and Project Management*. A first global survey on the current state of project management maturity in organisations across the world. PricewaterhouseCoopers Report.

Osterwalder Alexander, Pigneur Yves, Tucci Christopher L. (2005). Clarifying Business Models: Origins,Present and Futureof the concept Communications of AIS, Volume 15, Article, University of Lausanne & Business Model Design.

Porter, Michael E. (1998). *Competitive Strategy: Techniques for Analyzing Industries and Competitors.* Free Press. ISBN-10: 0684841487

Project Management Institute, PMI. (1987). *Project Management Body of Knowledge.* Project Management Institute.

Project Management Institute, PMI. (2003). *OPM3. Organisational Project management Maturity Model*, Project Management Institute.

Project Management Institute, PMI. (2003). *A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2003 Edition.* Project Management Institute.

Project Management Institute, PMI. (2006). *The standard for Programme Management*. Global Standard 2006 First edition. ISBN: 1-930699-54-9.

Project Management Institute, PMI. (2006). *The Standard for Portfolio Management*. Global Standard 2006 First edition. ISBN: 1-930699-90-5.

Porter, E. Michael. (1980). *Competitive Strategy*. Macmillan Publishing Co., Inc.

Popper, Karl (1966) Objective Knowledge. *A Realist View of Logic, Physics, and History* . Clarendon Press.

Pinto. J. (2001). *Project management: the Future Project management for Business Professionals, A comprehensive guide.* Edited by Joan Knutson. Wiley, NY.

Reason & Bradbury. (2001) .*Handbook of Action Research*. London: Sage Publications.

Sayer, A. (1992). *Method in Social Science: A Realist Approach*.London, Routledge.

Saunders, Mark, Lewis Philip, Thornhill Adrian. (1998). *Research Methods for Business Students*. Pearson Education Limited. ISBN: 0-273-63977-3.

Schaffer, Robert H. (1988). *The Breakthrough Strategy*. Harper Business.

Sherman & Torbert. (2000). *Transforming Social Inquiry, Transforming Social Action: New paradigms for crossing the theory/practice divide in universities and communities*. Boston Kluwer.

Shenhar J Aaron, (2005), *Seminar: The Project Management Excellence Seminar,* Stevens Institute of Technology, The Technological Leadership Institute Hoboken, NJ 07030

Shenhar, A. (1999). *Strategic project management: The new framework.* Portland International Conference on Management of Engineering and Technology (PICMET) Proceedings. Portland, OR, 2, 382–386.

Slife & Williams (1995) & Yanchar. *1997. What Is Psychology About? Toward An Explicit Ontology, Journal of Humanistic Psychology,* Vol. 43, No. 1, 11-32. Sage Publication.

Srivannaboon, Sabin. (2006). *Linking Project Management with Business Strategy*. Journal of PMI. Vol. 37. No. 5. 88-96, ISSN 8756-9728/03.

Somerville, Ian & Sawyere Pete. (1997). *Requirements Engineering*. John Wiley & Sons Inc. ISBN : 0 471 97444 7.

Standish Group. (2000). *Extreme Chaos.* Standish Group International Inc.
URL: http://www.standishgroup.com.

Standish Group International. (1998). *Chaos a recipe for success.* Standish Group publications.

Torbert, W. & Associates (2004). Action Inquiry: *The Secret of Timely and Transforming Leadership.*

Sinyavsky, Andrei. (1982). *Introduction to On Socialist Realism by Czesław Miłosz.* University of California Press. ISBN 0-520-04677-3.

Shearer, West. (1996). *The Bullfinch Guide to Art*. UK: Bloomsbury Publishing Plc. ISBN 0-8212-2137-X.

Stewart, David and Algis Mickunas. (1990). *Exploring Phenomenology: A Guide to the Field and its Literature*. Athens: Ohio University Press.

Taylor Dena and Procter Margaret. (2006). *Writing Support.* University of Toronto Health Sciences Writing Centre.

Vassilopoulos, A. George. (2003). *MSc Thesis on Manufacturing: Management and Technology : Strategic model for the implementation of IT projects in a financial organisation*. OU UK.

Van Fraassen, Bas C. (1980). *The Scientific Image*. Oxford: Clarendon Press.

Walsham G. (1993). *Interpreting Information Systems in Organisations*, Wiley, Chichester.

Webster's New 20th Century Dictionary. (1973). 2nd. edition. UK.

Wideman, R. Max. (2003). *First Principles of Project Management*. Revision 16. AEW Services.

Wideman, R. M. (1997). *Lecture notes*. AEW Services, Vancouver, BC.

Williams, Henry Smith. (1999). *A History of Science*. Project Gutenberg.

Wilson, Ian. (2003). *The Subtle Art of Strategy: Organisational Planning in Uncertain Times.* Greenwood Press. ISBN : 156720435X.

Youker, Robert. (2002). *Expert Project Management - The Difference between Different Types of Projects. USA.*

Youker, Robert. (1999). Paper: *The difference between different types of projects*. The Project Management Institute 1999 Conference in Philadelphia, Pa.

Bibliography

Calahan, Kevin, Lynne Brooks. (2004). *Essentials of Strategic Project Management*. John Wiley & Sons, Inc. ISBN: 0-471-64985-6.

Flood, L. Robert. (1993). *Beyond TQM*. John Wiley & Sons, University of Hall.

Goold, Michael, Quinn J. John. (1990). *Strategic Control*. Hutchinson. ISBN: 0-09-174618-3.

Hill, W. L. Charles, Gareth R. Jones. (2001). Strategic Management Theory. Fifth edition. Houghton Mifflin Company, Boston – New York. ISBN: 0-618-07146-6.

Kaplan, R. (1995). *Building a Management System to Implement Your Strategy: Strategic Management Survey: Summary of Findings and Conclusions*, Renaissance Solutions. London.

McGahan, A. (2004). "*How Industries Evolve - Principles for Achieving and Sustaining Superior Performance*". Harvard Business School Press, Boston.

Remington Kaye (2001). *Dealing with "fuzzy" projects.* PMI, Auckland , IPMA Berlin.

DOCTOR OF BUSINESS ADMINISTRATION

The Links between Organisational Strategy and Project Management

Document two

Critical literature review and initial conceptual framework

George A. Vassilopoulos

"Document 2 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

October 2007

Table of Contents

1. Introduction

The critical literature review developed and described in this document two, has been adopted an interpretive approach. This has been achieved by exploring respective theories, and by conceptualizing their meanings and notions, emerging from the interaction of elements from the main conceptual framework. This critique is based on the initial conceptual framework and applied by the view and perception of identifying the links, factors, variables and parameters of the project management concepts and, in addition, reveals their influence and impact on the context.

A radical critique is applied with a deductive approach in the arguments in order to recognize the links between the elements of the conceptual framework and identification of factors and variables, which influence the main context. In addition, there is an important classification between operational projects and strategic projects. This classification has been done in an attempt to critically review the literature on the most basic key concepts of the proposed conceptual framework according to the strategic approach of project management context. This approach, however, has also been done to address the problems of linking projects with their organisational environment. In the conclusion of this described attempt, a crafting approach of the most important issues of the study is done by an outline of the research questions and by mapping the next step forward.

There was a great amount of literature found concerning business strategy, project management context and implementation activities. There were also many papers, books, articles, and sites related to research subject. Mindful of the fact that business strategy is a more general theoretical framework than those used to study project management, it is considered that business strategy could have a useful link between project management and strategy literature. Furthermore, it was found that most of the sources suggested method models and tools in order to create and manage a coherent context and a link between business strategy and project management context. It was often pointed out in strategy literature that many factors influence the level of success in strategy implementation. On the other hand, few studies tried to identify exactly what these implementation barriers are (Heide et al 2002).

In the relevant literature, program management is suggested as a key link to solve puzzles and to link projects toward a common strategic objective. Several authors stressed the importance of linking projects, and their management, to strategy. They also proposed different models,

describing how the management processes at project and multi-project levels can be integrated with the organisational strategy management process. These perspectives argue that strategic success, based on environmental factors, are also dependent on intra-organisational variables, such as organisational culture, organisational learning and knowledge.

Strategy and implementation

The review, through the exploration of organisational strategy at the main section of the definition and history of strategy, was initiated according to business and academic approaches. Strategy implementation and project management have developed quite separately, and independently, in order to improve organisational infrastructure and processes. Project management is perceived as a vehicle for strategy implementation. On the other hand, there is found to be a confusion of project management cycle due to decays of strategy forms cycle (deliberate, emergent, sub-emergent, emergent and back to deliberate), (Grundy 1998).

The review then demonstrated a formation of strategy types, the approach of the managerial flow of strategic management process, strategy formation, and the factors and variables of implementation. Complexity and strategic management arguments are also considered. Schools of strategy identified and multiple business strategy typologies are discussed in a project management and business strategy alignment. The external and internal business model's views are then illustrated in cobweb diagrams. The role of Strategic Business Units (SBUs), and a number of strategy models, is presented, as well as the various approaches and arguments on implementation and the formation of strategy.

In the review, strategy is generally adopted as the idea of how a company reaches its goals having, as a result, a business decision for action, or a planned project, by determining future directions in the market and implementing those decisions. Arguments in strategy implementation are presented in relation to the influencing factors and variables of strategy implementation, which produce obstacles in many ways. There are many different approaches and arguments, by many authors, on strategy implementation. In many arguments, strategy implementation is adopted as an action-oriented, make-it-happen activity and never-ending. Lastly, strategy is found to be a multifaceted, and complex, organisational process with a relative lack of importance on business management support.

Various perspectives of strategy implementation, effectiveness, consensus, complexity of technologies and new business practices, in addition to globalization of markets, are identified. The Formalization of strategy definition is mentioned as the degree to which decisions and working relationships are governed by formal rules and procedures. Emergent

strategy is presented as a means of achieving these goals that can change in new and sometimes surprising ways. Mintzberg (1994) showed that emergent strategy is a key factor. Thomson (1998) argued that it depends on the different level of competition organisation acts. Hussey (1998), Wilson (2003), Bamford (2003) and Bantel (1997) pointed out that synergies should be developed between strategy and implementation processes. Bamford (2003) stated that organisations create strategic structures and routines in order to implement strategy targets. Hussey (1998) considered strategy as the driving force, interacting with the other organisational components, to produce outcomes, and can be achieved by monitoring and controlling processes to ensure that actions are correctly undertaken and results are as expected.

Finally the role of organisational structure, and the behavioral norms of its employees, is also discussed. Many authors like Kotnour (2000), Orwig et al, (2000) and Bryde et al (2007), mentioned that Total Quality Management (TQM) and Business Process Re-engineering (BPR), are tools for continuous improvement of business and strategy processes as well, but on the other hand Hussey (1998), Bamford (2003) and Wilson (2003) have adopted the notion that the ability to execute strategy is more important than the quality of strategy itself.

Operating plans

Operating planning is explored through the review of arguments by various authors. The definition, and the critical role it plays in the strategic implementation flow of organisational decisions, is also presented. The key task for a strategic planning process is to assess when it is required in order to re-classify the strategic initiatives and opportunities and re-modify the strategic plans and, as a result, the linked processes of PM context. Results from surveys, and other research studies, identified the factors and the gaps that influence a strategic plan. It was presented that the plan is indispensable as a strategic guideline, and that it should be adapted and communicated to achieve the changes planned.

Project management context

Based on OPM3 2003, by the Project Management Institute (PMI), the Organisational Project Management Maturity Model has introduced the organisational project management context in three sections - Portfolio Management, Programme Management and Project Management. These tiers are extensively analyzed in the following chapters. Program and portfolio management both have a role to play in strategy formulation. Many organisations around the world are increasingly realizing that corporate strategy is delivered through projects, and that project management capability is a key to their ability to deliver their strategic intent (Crawford et al 2006). Related literature on portfolio management presented theorized it as a

strategic element in an integrated management system, after strategy formulation, in relation to operation planning. In the same way, program management is presented as a strategic tool for charting the project and linking it to the ongoing work of the organisation. The literature on program management is classified into categories (Blomquist et al 2006). The link of portfolio and program management is identified as well as the confusion between program management and other disciplines and processes, such as project management and portfolio management in many companies, classrooms and works of literature. Project management, projects types and traditional approaches, by the Project Management Institute (PMI), are illustrated in relation to their business contribution.

Subsequently, and according to structure from the Project Management Body of Knowledge (PMBOK) PMI (2004), the project management linking process has been developed and presented along the following route - project initiation, project planning, project execution, monitoring and controlling, and project closing. Although PMI (2004) is reflected by mapping the project management knowledge area processes within process groups, their interactive relation and the operational activities take place in a project progress.

Strategic Project Management (SPM) is defined and analysed, by many authors, according to various approaches and arguments. It is perceived as the practice of managing complex projects by combining business analysis (strategic, operational, organisational and financial analysis) and project management techniques in order to implement the business strategy and to deliver organisational breakthroughs. Aubry et al (2007), however, recognized that the concept of strategic project management is not sufficiently explored in the business and project literature and that the latest empirical researches show that not all organisations succeed in the linkage of projects and strategy.

On the other hand, it seems as if a paradox exists between the organisational desirability of linking strategy and projects, and the concrete actions that organisations take to achieve them. Maylor (2001) stated that the Project Management Body of Knowledge is based more on empirical evidence than certain knowledge. If project management does indeed lack a strong theoretical base, it is perhaps because it has been trying to establish its own domain within the management arena, but with little success. All well-developed theories of management are within one or more specialties that have many years of dedicated research and development behind them. Brown et al (2000) argues that the continuing poor record of projects, in relation to the delivery of objectives, suggests that project management has not yet been implemented properly in relation to the body of knowledge, which has been developed to support it. Finally, the Project Management Office (PMO) presented with having a key role in

organisational project management context and as a function of mediation, by managing the project management system.

Organisational strategic alignment, links and influencing factors

Going forward, these chapters show how a strategic alignment is achieved and in which ways. In addition, alignment types, factors and variables of strategy implementation are described in a variety of arguments, results and approaches from various authors and studies. These factors come from reviews in literature found in past and recent books, papers, articles and other sources. The focus and content helped to express the intent of such interaction by using a descriptive approach of the attributes of these elements that business strategy shaped. They are in the sphere of project management processes alignment with business strategy and top-down alignment with organisational processes (including project management processes) - Strategy – Operating Plans –Portfolio – Program and Project processes.

The influencing factors are analysed through the following approach - organisational structure, upper management relationship and influence, analysis of failure and success factors in strategy implementation, communication and consensus as a key success factor, the role of triple constraints (time, cost and quality), human and cultural factors, the influence of stakeholders and sponsors and environmental factors. They are also examined through the following factors - the role of Balanced Score Cards (BSC), ethical factors, the key role of risk and earned value management, the main concept of project management maturity, organisational knowledge and learning, the role of flexibility, creativity and innovation and, finally, influence from the factors of uncertainty, urgency and unexpectedness.

Maylor (2001) argues that there are clearly problems with the traditional approach and there is a need for a new approach. The traditional approach is based on computational planning and control models, originating in large projects from the 1950's onwards, and is used extensively by many traditional project industries, predominantly contractors of aerospace, defense and large construction (Kerzner, 1998). Noble (1999), in his research on strategy implementation, suggests that more study needs to be done to identify the key factors that influence individual-level commitment, performance, and success in strategy implementation. Mintzberg et al (1998) argued that the study of strategy includes the actions taken, the content and the processes by which actions are decided and implemented. Strategic management and project management have a common enemy in overcoming the constraints posed by strategy implementation (Grundy 1998).

The hypothesis that corporate strategy was created from an organisation's mission, goals, and objectives and how it is being linked with implementation and results was the strategic question which was formulated according to the relationship framework and identification of links between business strategy and project management context. The conceptual framework identified, according to the findings from the literature review, is based in the influencing factors.

There are many references to project strategy found in the literature, including an emphasis on the tactical and implementation elements, tools and techniques. By the extensive review of literature on business strategy and implementation and the findings concerning the overall conceptual framework evidences, it is found that there is a general disconnection between business strategy and project management objectives. Finally, a model called a "Project Management Strategy Implementation Model (PMSIM)", which is based on the initial assumption and creativity presented, is discussed in the conclusion.

Summary

There are two strands in this literature review – 1) an analysis and a synthesis of the literature across the diverse fields of the conceptual framework initiated in document one, and 2) the literature review applied by deconstruction of all those arguments and reconstruction of them to fit to the current research conceptual framework. Important comments, discernments, arguments and suggestions are also evaluated, criticized and set into specific sections in the final conceptual framework. In addition, how other authors and researchers perceive this relationship, is discussed, based on their results. What links exists and what factors are influencing this context is also covered in this review. Two types of classification come about by analyzing these theories. Firstly, most of them bring innovative ideas and seem unique, and secondly, some of the theories are based on the analysis of what a few successful companies have actually done, which is not always what they should be doing. In the relevant literature, there is a review of the patterns of each business strategy typology in relation to the elements of each project management. This seems like a mental model of linking projects to strategy and is like fractals and chaos theory (Englund et al 1999).

The reciprocal relationship between project management and business strategy is explained by discussing their strategic feedback, which is done by adapting it with business strategy. Although it has long been recognized that the majority of failed strategies break down in the implementation phase, researchers and practitioners have little concrete knowledge of this area (Noble 1999). Partington's (2004) concern, based on researcher's knowledge, is that it is

notoriously difficult to attribute causation between management endeavor and performance on the simplest project, let alone on complex, shifting, and strategic programs. Barnes (2001) stated that strategy is such an all-encompassing topic, that there is a danger that researchers may be tempted to study everything and, in so doing, condemn themselves to discover nothing.

The author recognises that there are many different aspects of arguments from many writers on definition of strategy and implementation. This study, however, will attempt to find and analyse those links between strategy and implementation from a higher level of approach in relation to the suggested conceptual framework. On the other hand, a mere review of the literature does not provide a clear conceptualization or definition of organisational strategy and project management context. As Aubry et al (2007) observed, on a global level, the current project management literature is lacking two elements - theoretical foundations and valid, verified empirical models. The empirical and practical qualitative and quantitative approach will be achieved in documents three and four, by an analysis of in-depth interviews and surveys.

2. Mapping the Literature

Information from the literature on the research topic is collected from various sources - books, articles, papers, Internet sites, etc. This material is categorized according to the most important and related key theories and by its relation to the research topic. The literature content is then divided into main sections and subsections in order to connect the notions and ideas from works published over the years. This classification is beneficial as it provides a descriptive foundation to map ideas and arguments in different ways for their future evaluation and assessment.

Classification

A reflexive approach is adopted for the symmetrical sorting, evaluation, and classification of the literature information. As a result, the huge amount of literature available for the needs of the present study is reduced to a manageable number. This classification system is applied to convince readers of this review that the labels, used to classify particulars, are plausible (Hurt 2005).

Mapping

According to Hurt (2005), the mapping of ideas and notions, related to the research topic, is the geographical design and presentation, in diagrams and tables, to identify what has been done, when, what methods were used, and by whom. This is a valuable starting point, in producing a literature overview of ideas found, by identifying the relationship and links of what has been done and by showing the way that they influence what has been produced. Declarative knowledge, translated into procedure and ideas, is organized and arranged into appropriate categories. Thinking analytically and understanding the notions, finding the connections and recreating new interesting schemes is achieved by acquiring, structuring, and comparing procedural arguments of the relationship of the researched elements as key concepts, theories and used methods which different authors have employed.

For the purposes of this study, a combination of mapping methods have been evaluated, such as feature (relationship) maps, relationship maps, linear relationship maps, tree construction maps, semantic maps and concept maps. In this study, as all mapping types are representative of arguments (which can also be presented in other ways), a linear analytical relationship map has been chosen.

Variation of other mapping mixtures, in each of the main researched areas, is also employed. This, in turn, means that concept and semantic mapping is used for the isolation and focus on specific aspects in literature. Each area is connected to the other, as a logical flow of information, and is influenced by the factors. Using a diagrammatic format of key areas and systematic analysis of related literature, and by identifying the key main abstractions in the arguments, a summarized schemata, and comparison of similarities and differences between authors, is produced.

The initial map, designed to be used in this report, is presented in fig 2.1.

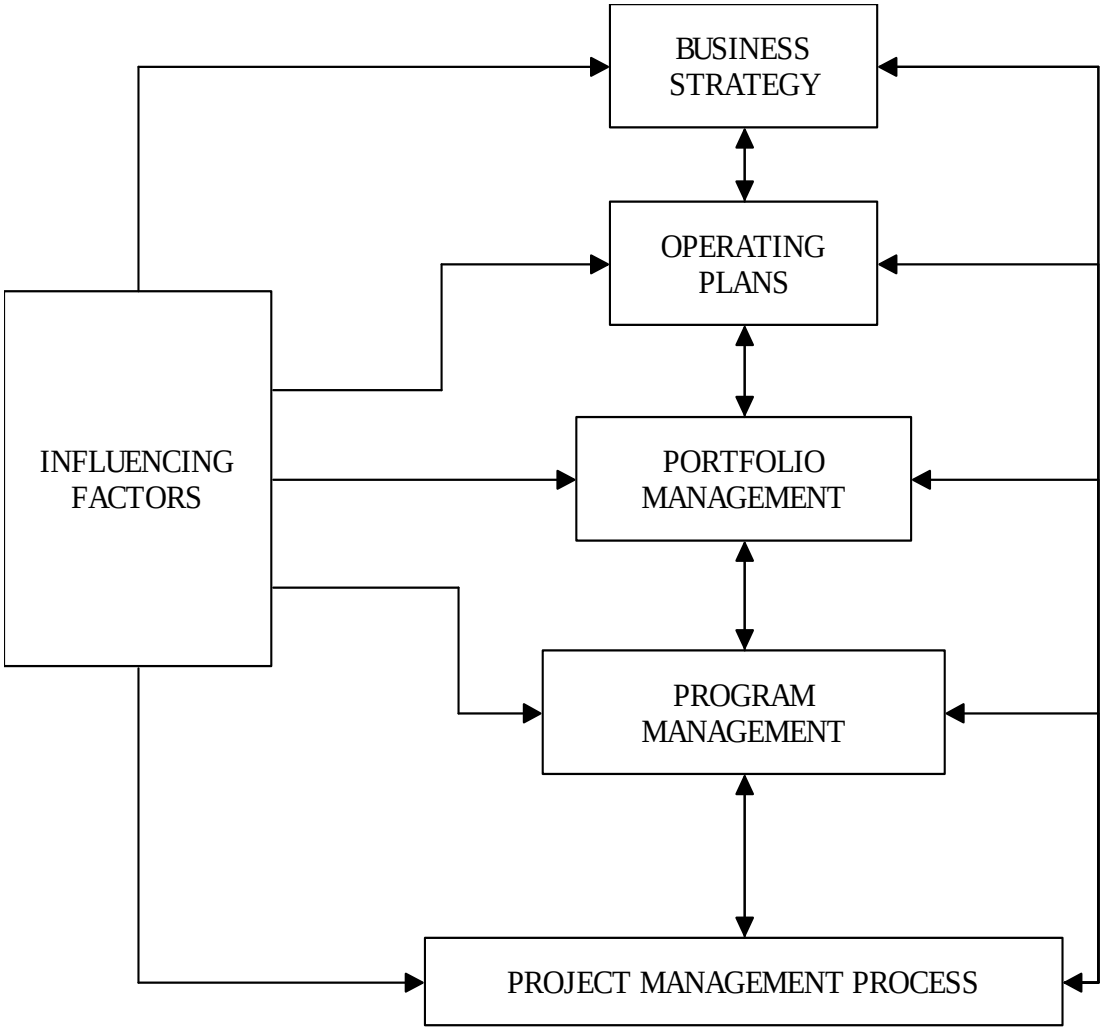

Figure 2.1 Literature relationship map

3. Approach of literature review

As Colin Fisher (2004) mentioned, a comprehensive literature review is one of the most essential and preliminary steps of the research process. A mixture of mainstream postmodern and deconstruction approaches influences the critical review and evaluation of literature, in this study. Postmodernism is the belief that most theoretical concepts are defined by their role in the conjectured theoretical network and are incomplete. They are partially interpreted and the researcher's task is to 'close' them, though never completely. By using a contemporary view as referred to in sociology, it seems that there is an outside reality but not necessarily an objective reality and those individuals, depending on their mental models, normally perceive this reality in their own way (Jaafari 2003). In this case, the radical critique used identifies the conventional positions of business project management's sets of ideas and concepts, which medieval philosophers called universals. In addition, a critical realism mode preferred to reveal the causes of their objective existence as a linking substance, by using a dialectical mode of contradictions and negations. Maclachlan (2004) claimed that, according to Jacques Derrida, the postmodern view of theory assumed that a network of self-referencing meanings, which go round in circles, leads to aporia. Jacques Derrida's deconstruction is a way of criticizing medieval universals in project management. Derrida himself explains "Derridean" deconstruction as neither an analysis nor a critique - "It is not an analysis in particular, because of the dismantling of a structure, and is not a regression toward a simple element, but toward an indissoluble origin". These values, like that of analysis, are themselves philosophemes subject to deconstruction. No more is it a critique, in a general sense or in a Kantian sense. The instance of 'krinein' or of 'krisis ' (such as decision, choice, judgment, discernment) is itself, as is all the apparatus of transcendental critique, one of the essential 'themes or 'objects' of deconstruction". This is an attempt to re-conceive the difference between self-reflection and self-consciousness in a critique. Self-consciousness or self-reference is a natural human trait which can be enhanced through linguistic abilities for codification of information, internalization and processing of the same and subsequent communication and reflection. Self-reference is on the rise and as a reaction of individuals to the rising environmental complexity. Self-reference encourages an individual to develop capabilities to understand and digest environmental complexity and to address an appropriate degree of environmental complexity reduction internally in order to handle external complexity and uncertainty in decision-making (Jaafari 2003), (Maclachlan 2004). The hypothetical deductive method implies a predisposition to a particular perspective of what makes a theory and, therefore, an appropriate method of theory construction and verification. The task of theory building in an applied field is a series of conversations between research

and practice, between concept development and concept verification, through research in the real world. (Lynham 2002).

The literature information boundaries are thematically structured to the following major areas of interest - business strategy, operating plans, portfolio management, program management, project management, links and influencing factors. The conceptual framework elements, developed and constructed through the literature review, use the following. Based on Fisher's (2004) and Hart's (2005) approaches, a nuance of a reflexive stance of critical review for a detailed deconstruction, analysis, antithesis and synthesis. This is applied by identifying and prioritizing key works and ideas and by thematically structuring, examining and explaining their significance and defining evidence. It is an identification of camps, waves and schools, ideological stances and positions. Arguments are compared, contrasted, and evaluated. Finally, arguments are provided for the development of the conceptual framework. Forensic critique is used against arguments by drawing conclusions, by deduction of stated premises and induction from researcher's experimentations and, in addition, a plural structuring used with metaphors and analogy critique.

4. Business Strategy and the Links with Project Management Context

4.1 Organisational strategy

The history of strategy

Strategy has been one of the most important concepts in the history of the business world. It can be traced back to the ancient Sumarian period, 3000 BC, with the implementation of dense tactical infantry formation of overlapping shields called the phalanx. In ancient Greece, strategy meant a chief magistrate or a military commander. The word is derived from the Greek “strategia”, meaning “generalship,” which, in itself, is compounded from two words, "stratos", meaning army, and “agein” which means to lead. The development of strategy continued the growth of civilization through technological discoveries, ideology and nationalism. According to Webster's New World Dictionary and Thesaurus 2nd Edition (2002), strategy is “The science of planning and directing large-scale military operations”, specifically (as distinguished from tactics) of manoeuvring forces into the most advantageous position prior to actual engagement with the enemy. This definition shows a direct link between planning and directing operations to implement targets leading to an advantageous and competitive position. More recent contributions are similarly emphatic to the notion of strategy. The strategic management literature of the 1990’s promotes two important issues in the making of strategy. First, strategies need to be progressive and second, strategy formation should not be confined to the top of the organisational pyramid, but should rather enjoy a much wider constituency of participants in order to maximise the creative and informational input (Littler et al 2000). Finally, Woolridge et al (1989) argued that involvement in the formation of strategy is associated with improved organisational performance.

Between the 1980’s and early 1990’s, both academics and consultants started to wrestle with strategic dynamics. Around 1980, Porter considered that, depending on the considerable scope, there are three generic strategies. In his book, Competitive Strategy (1980), Michael Porter identified three fundamental competitive strategies and outlined the required skills and resources, organisational elements and risks associated with each strategy. These were cost leadership, differentiation, (and levels of differentiation) and focus. Cost leadership was considered one of the key strategies to achieve a competitive edge in the marketplace (Porter, 1980). In addition, Porter (1998) suggested that considering these generic strategies might also require different styles of leadership, it could be translated into very different corporate cultures and atmospheres.

Organisational strategy

The term “strategy” has been increasingly used at all levels and in all contexts. Its constant use resulted in a term that came to mean everything, yet ultimately nothing. This can be connected to the fact that strategy model making has become an industry in itself, the product of which is more rhetoric than a concrete attempt to improve the competitiveness of organisations. The sequence of the strategic management process varies from company to company. In 1985, Porter described business processes as the operational undertakings through which resources are leveraged to deliver customer benefits. Business processes consist of sequences of individual activities which build customer value chains. The actions undertaken by management to cultivate strategic outcomes, and the organisation’s individual operational activities, are keys to making strategy work.

Wilson (2003) states a more organisational approach for Strategy and adopts it as the science of planning and managing a corporation’s operations, specifically to position a corporation in its chosen markets to achieve maximum sustainable advantage over its competitors. It is the driving force that shapes the future nature and direction of the business. Johnson et al (2005) defined business strategy as the direction and scope of an organisation over the long term. Ideally, this means to match its resources to its changing environment and, in particular, its markets, customers or clients so as to meet stakeholder expectation.

From a business view, Pietersen (2002) captured the essence of strategy as the ceaseless pursuit of advantage and the eternal struggle of business towards and advantageous win. Strategy may appear as a plan to some, but to others the term is used to describe a position, namely “the determination of particular products in particular markets”. For others, strategy implies a perspective or the concept of doing business (Mintzberg 1994).

Ward J et al (2002) defined strategy as a creative and evolving required process, which identifies where the organisation needs to be in the future and can be assisted by the use of tools, techniques and models to identify and select the most appropriate options.

Also, Grundy (2001) noted that despite numerous authors having differing views on the meaning of strategy, the conventional definition is ‘the means of getting from where you are now to where you want to be - and with competitive advantage’. On the other hand, Mintzberg (1994) introduced the five P’s of strategy whereby strategy is a plan, pattern, position, perspective, and ploy.

Strategy is generally an idea of how a company reaches its goals. The process of forming this idea is called strategy making, which includes strategic planning. As a result from the

previous statements, strategy is basically about two things. Deciding where you want your business to go, and figuring out how to get there. A more complete definition is based on competitive advantage, the object of most corporate strategy.

Mintzberg et al (1998) mapped the lumps on the space of strategy formation, in figure 4.1.1, which identifies those various approaches along two dimensions - how controllable the external environment seems to be by ranging from comprehensible to confusing and how open ended is the proposed internal process, ranging from rational to natural.

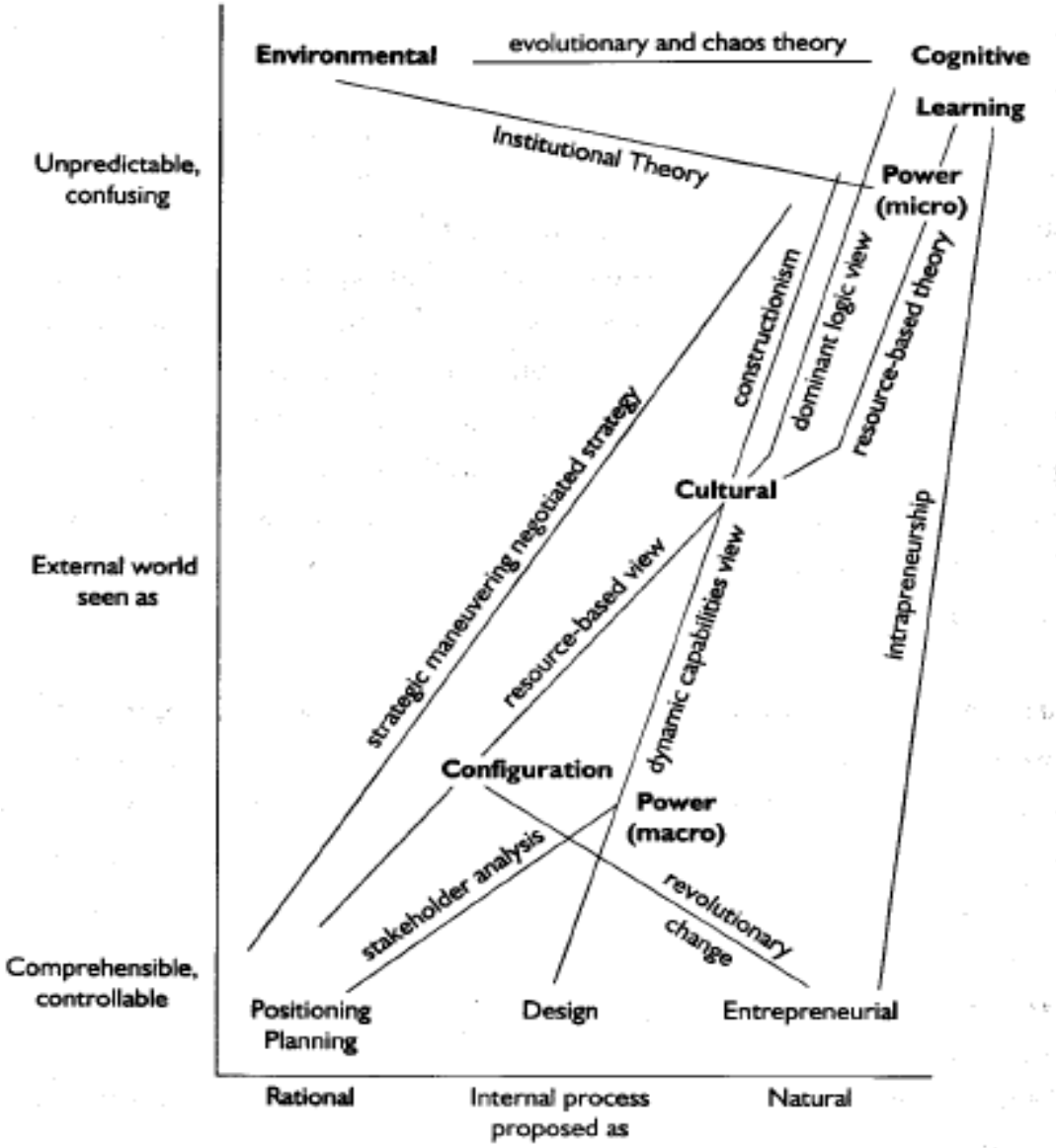

Figure 4.1.1 Approaches to strategy formation (Mintzberg et al 1998).

Strategic objectives

Objectives are the key drivers within an organisation. Most organisations are driven by financial or cost measures, such as Profit, Sales, Net Present Value (NPV), Internal Rate of Return (IRR), or Economic Value Added (EVA). Porter (1996) noted that strategy means deliberately choosing a different set of activities. Business processes consist of sequences of operational activities, including the active utilisation of strategic assets. Strategy defines how a business will achieve the strategic objectives it has established. “Objectives” signify the reason for a projects' existence and “goals” mean the results that are expected. In other words, "what for" is questioned in terms of objectives, while specific items, such as “what,” “by when” and “how” define goals. Objectives seem to have more significance than goals and have a higher level of abstractness. Meanwhile, goals indicate specific, assigned tasks and involve lower degrees of abstractness (PMCC 2001).

There are two key result areas of objectives. These are financial and strategic, with three types of strategy: *business, functional and operational*. The consistency between these three strategies comes from their collaboration, on a functional and operating level, by achieving business objectives and continuously improving their performance. All types of structure are associated with high and low achieving decisions (Miller et al 2004).

Emergent strategy and project management

Emergent strategy is where the project's end goals (and intermediate goals) are necessarily fluid, and where the means of achieving these goals can change in new and, sometimes, surprising ways. As companies are changing their corporate strategies over time, they must change their structure since different strategies are managed in different ways. Each requires a different combination of structure, control, and culture to economize on those costs (Hill et al 2001). Strategy, it has been said, is clear only in retrospect (Harvard Management Update 2003). Indeed, the notions of "deliberate' and 'emergent' strategy and project value, in strategic management, can be applied in an extended way to strategy implementation and to project management. Deliberate strategy is where the project has well defined end goals and a clear and specific means of achieving these goals. Sub-emergent strategy is where the project is losing its way. Its original goals now seem distant and unreachable, and project activities are beginning to fragment. Emergency strategy is where the project is truly fragmenting into near-random actions and where the project, as a whole, appears to be overtaken by events. Finally, detergent strategy is where the project is recognized as off-course and, by now, being steered back onto its original track, or onto a new track (Grundy 1998).

In a more recently study, Morris et al (2004) presented that emergent strategy could influence intended strategy through components of the strategic management process. Earlier, in an

equally argumentation by Mintzberg (1994), showed that emergent strategy is a key factor, namely strategy that becomes evident as it, and events, emerge with time, in influencing the way strategy is realized in practice. Emergent strategy suggests a more incremental, learning approach to implementation where results are regularly appraised against benefits and changes are managed against the evolving picture of requirements. In such circumstances, implementation projects and programs often have an ambiguous relationship to the environment in which they evolve because they often stretch and change the context of which the strategy is addressing. Finally, Thomson (1998) argued that it depends on the different level of competition organisation acts, such as a monopoly, oligopoly, dynamic competition or perfect competition; it sets the emergent strategy's flexibility level of response and action.

Strategic flexibility

Flexibility is the competitive priority that is associated with the project processes in works that have considered project processes as a category in the product-process matrix (Oltra et al 2006). Many industries are now so competitive that companies must adopt a transnational strategy. This involves a simultaneous focus on reducing costs, transferring skills and products, and local responsiveness. Implementing such a strategy may not be easy (Hill et al 2001). With another important approach, Whittington al (2006), noted that, in an accelerating world, the dynamic and practical duality of strategizing, organizing reflects contemporary strategic and organisational work more effectively than the static dualisms of the traditional management theories. As the two mesh into an integrated duality, the language used to describe them needs to be modified, and strategy and organisation converted to their verb forms. Strategizing and organizing is done to better represent the kind of shift in the nature of strategic planning, where analysis and forecasting is increasingly displaced by coordination, communications and control. Such considerations assume increased importance in fast-changing conditions, when there are diminishing returns to the analysis of indefinable futures.

Complexity and strategic management

The research of Mintzberg et al (1998) reveals that strategy making is an immensely complex process involving the most sophisticated, subtle and, at times, subconscious of human cognitive and social processes. The world in which organisations operate today is rapidly becoming more complex then ever before. A key challenge for organisations is to stay focused on strategic objectives and the ability to accomplish them without failures. Strategic management is adapting to external changes and sometimes causes the external environment to change, as there are interconnections between them. Strategy literature has focused on managing change as the central strategic challenge. Successful organisations will be the ones that deal most effectively with change, not simply those that are good at planning ahead.

When the direction of change is too uncertain, projects can not be planned effectively. When industries are rapidly, and unpredictably, changing, strategy based on industry analysis, core capabilities, and planning may be inadequate by them, and would be well complemented by an orientation towards dealing with change effectively and continuously (Olavson Thomas 1999). The formulation of strategic process is scanning both the external (for opportunities and threats) and the internal environment (for strengths and weaknesses) (PMI 2005).

Strategic typologies and schools

There are multiple business strategy typologies that should be considered in a project management and business strategy alignment. These are emerging and rapidly growing, maturing, stagnant, declining, and fragmented industries, high-velocity and international markets. An organisation's strategy consists of the integration of many factors that can conceivably be mixed and matched in endless combinations (Miles et al 2003). In every chosen strategic typology, which matches one of the classic types of organisational situations, (leadership, runner-up and weak positions), an organisation must be able to establish a strong link with the implementation process (Thomson 1998). From another point of view, Wilson Ian (2003) identified the schools of strategic thinking as design, planning, positioning, entrepreneurial, cognitive, learning, power, cultural, environmental and configuration. Michael Porter (1985) defined the four Generic Strategies - cost leadership, differentiation, cost focus, differentiation focus (figure 4.1.2). These four generic strategies, despite some of their shortcomings, have not been replaced to date and too many managers are 'The Strategy' by itself - they are the second element of Total Business Strategy. The generic strategies remain useful to characterize strategic positions at the simplest and broadest level and introduced the need to choose, in order to avoid becoming caught, between inherent contradictions of different strategies.

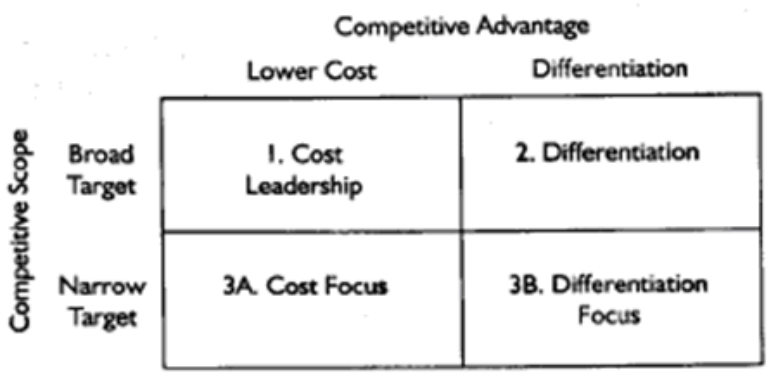

*Figure 4.1.2, Porter's Generic Strategies (*Porter 1985)

Strategic positions emerge from three distinct sources, which are not mutually exclusive and often overlap. The first is variety-based positioning as it is based on the choice of product or

service varieties rather than customer segments. The second is needs based positioning, which comes closer to traditional thinking about targeting a segment of customers. The third basis for positioning is that of segmenting customers who are accessible in different ways. According to the previous statements, strategy is the creation of a unique and valuable position, involving a different set of activities (Porter 1996). In an analysis applied by Eto (1991), in one hundred and ten large, Japanese organisations (in all of the manufacturing sectors) it was found that business strategies could be classified into product-market strategies and competition strategies in a classical context of the relationship between corporate strategies and structures. -These formal structures were connected to overall corporate organisations and in congruence with corporate strategies. Strategy implementation utilizes both structural framework and interaction process elements, but by a different implementation approach and optical angle, it characterizes each type of strategic decision (Skivington et al 1991)

A corporate strategy should enable a company, or one or more of its business units, to perform one or more of the value creation functions at a lower cost or in a way that allows for differentiation and a premium price. Horizontal integration can be understood as a way of trying to increase the profitability of a company by reducing costs, increasing the value of the company's product offering through differentiation, managing rivalry within the industry to reduce the risk of price warfare, and increasing bargaining power over suppliers and buyers. There are two drawbacks associated with horizontal integration - the numerous pitfalls associated with mergers and acquisitions and that the strategy can bring a company into direct conflict with the antitrust authorities. Vertical integration can enable a company to achieve a competitive advantage by helping build barriers to entry, facilitating investments in specialized assets, protecting product quality, and helping to improve scheduling between adjacent stages in the value chain. The drawbacks of vertical integration include cost disadvantages, if a company's internal source of supply is a high-cost one, and lack of flexibility when technology is changing fast or demand is uncertain (Hill et al 2001).

From a global vision, Oltra et al (2006) divided strategy patterns into three types. The first pattern is the trade-off behavior, which emphasizes cost and other priorities. Secondly is the cost as the least emphasized group of priorities, and thirdly is the production quality and delivery dimension, with the least emphasized priorities being composed of cost and customization. By his research in literature and interpretation, Miles et al (2003) has identified four organisations types in reflection of their strategy direction. Each type has its own strategy for responding to the environment. These are the Defender, the Reactor, the Analyzer and the Prospector. Mintzberg et al (1998) identified ten schools of strategy

formation. These schools are Design (as a process of conception), Planning (as a formal process), Positioning (as an analytical process), Entrepreneur (as a visionary process), Cognitive (as a mental process), Learning (as an emergent process), Power (as a process of negotiation), Cultural (as a collective processes), Environmental (as a reactive processes) and Configuration (as a process of transformation). Figures 4.1.3 and 4.1.4 illustrate the evolution of the ten strategy formation schools, from 1965 to 1995, by grouping them into two categories - prescriptive and descriptive.

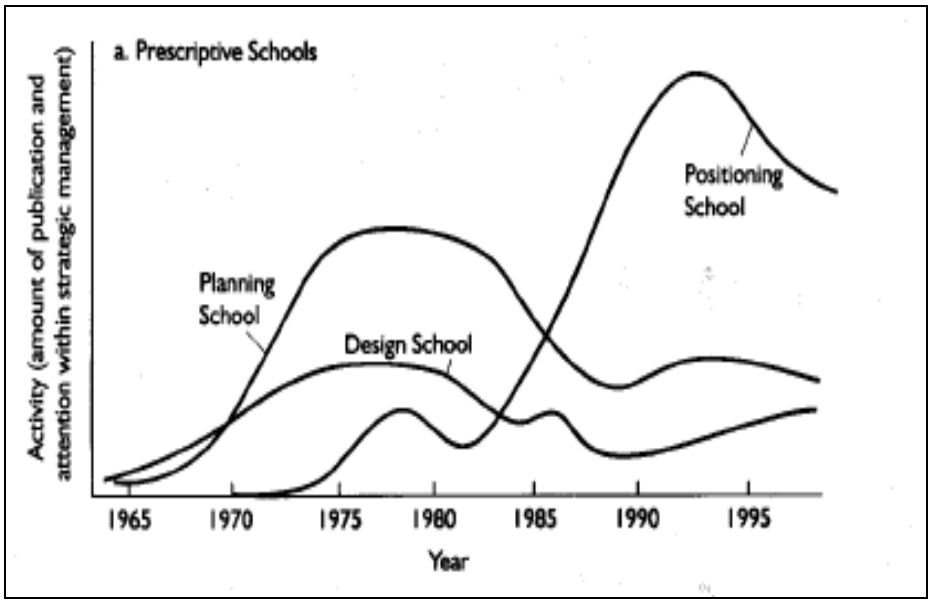

Figure 4.1.3 Prescriptive schools of strategy formation (Mintzberg, et al 1998)

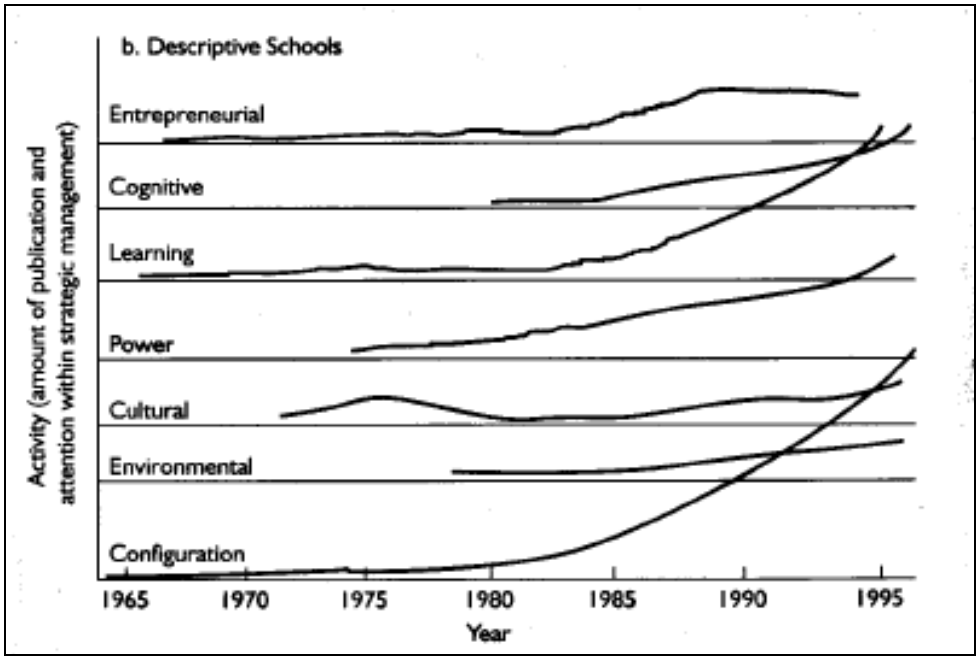

Figure 4.1.4 descriptive schools of strategy formation (Mintzberg, et al 1998)

According to Milosevic et al (2007), the strategic objectives of an organisation are structured into the following seven areas - profitability, productivity, competitive position, employee development, employee relations, technology leadership and public responsibility. In addition, Anderson et al (2002) classified the different types of strategy as formal, emergent and reactive. Finally, two major variables, or units, of analysis in a framework are business strategy and project management. Focus and content are two items that express major attributes of a project management element that business strategy affects with a reciprocal relationship (Srivannaboon 2004).

Wilson (2003) identified the attributes of strategic thinking as holistic, focused, visionary, practical, inquisitive, flexible and decisive. In addition, three sections are involved in translating the proposed strategy into action. These are specific implementation plans, financial implications and contingency plans. Calahan (2004) grouped organisations strategically, and according to their operations, into three types. These are functional, matrix and projectized. He implies the matter of the last type would be the most successful for business strategic objectives implementation. Charvat (2003) wrote about three main types of organisational structures – 1) The matrix structure, which is extremely difficult to work in, where project coordination and follow-up is mandatory, 2) functional structure, which relies on the functional managers to manage their projects, 3) project structure, or the project approach, which has the ability to rapidly formulate the project team and move forward.
From the general review of various literatures, the author can classify strategy into a diversified organisational approach with two ways of influence, functional and operating strategies which are based in turn on corporate, business, functional, operational and a single business company classification.

Formalization of strategy

The interpretation that has been adopted is that formalization of strategy is the degree to which decisions and working relationships are governed by formal rules and procedures. Rules and procedures provide a means for defining appropriate behaviors. Routine aspects of a problem can easily be dealt with through the application of rules, and rules enable individuals to organize their activities in order to benefit themselves and their organisation. They are a form of organisational memory and enable businesses to fully exploit previous discoveries and innovations. Formal rules and procedures can also lead to increased efficiency and lower administrative costs. Organisations with fewer formal procedures are often referred

to as organic. Organic organisations encourage horizontal and vertical communication and flexible roles (Olson et al 2005). In contrast to the previous arguments, Mintzberg et al (1998) sensed that the fallacy of formalization is based on human behaviour, and beliefs, that have captured a process simply because it was broken into components and specified procedures for each of them. Some kinds of processes, involving learning and innovating, only seems to give them some kind of edge. The questions here are - 1) How can the system in fact implement it? 2) Can strategic planning recreate the process? 3) Can innovation really be institutionalized? And 4) Can such analysis provide the necessary synthesis? This kind of formalization edge is showed in figure 4.1.5. In this respect, Gaertner et al (1984), in a qualitative research, found many differences and difficulties surrounding the organisational innovation process. In one case, the administrative innovation was sought by top management to improve coordination, but was difficult to achieve. Another case found that was more easily achieved but was less sought after.

At a more fundamental level, however, a distinction is made between two different approaches to strategy - value capture and value creation (Hansen et al 2006). Management theory has traditionally relied on hard dualisms and static nouns. Consider ‘strategy and structure’, ‘operational’ and ‘strategic’ plans or ‘formulation’ and ‘implementation’. These dualisms presuppose a detached rhythm that allows for orderly sequences between the analytical formulation of strategy and its smooth implementation in operations and structures. In more and more industries, however, the acceleration of change leaves little space for such analysis, detachment and order (Whittington et al 2006).

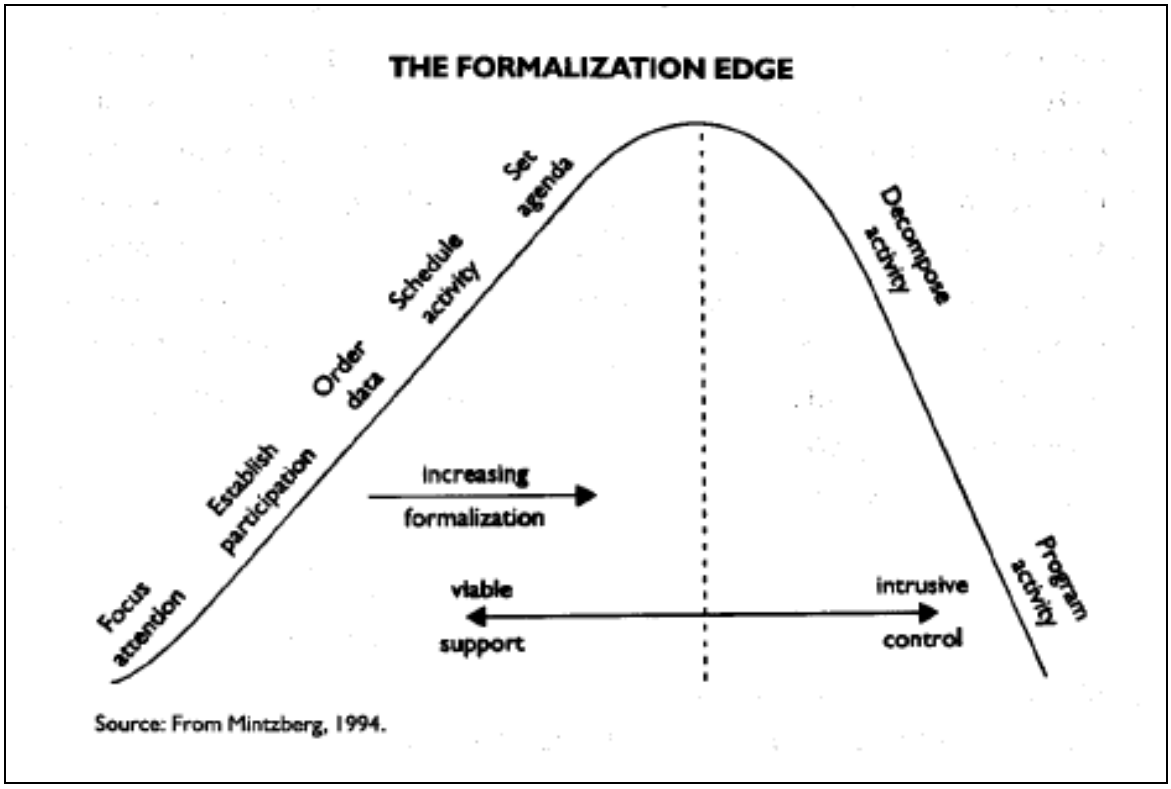

Figure 4.1.5 The formalization edge (Mintzberg et al 1998)

Models of strategy

In the business and academic literature on strategy, there is any number of strategy models. According to Winter (2003), a strategic business model specifies strategic properties of a company, or business unit, that may act independently on a market, at a certain point in time, with regard to certain dimensions that represent value proposition, potentials, resources, and markets. The external view of a business model corresponds to the 'market based view' on strategy making, focusing on the 'selling' side of a company or business unit. The internal business model view represents sources, characteristics and effects of capabilities. It corresponds to the 'resource based view' on strategy making, focusing on the 'production' side of a company or business unit. Business models that are specified by assigning values to more than three dimensions can be graphically represented as cobweb diagrams in figures 4.1.6 and 4.1.7. Belout (1998) defined the different conceptualizations of organisations and their roles, which lead to various models of effectiveness such as the "Goals models", the "Legitimacy models", the "Internal processes or internal functioning approach", the "System resource models" and the "Strategic constituencies models". Each of these leads to different definitions of organisational effectiveness and criteria. The effectiveness of an organisation's operations strategy is a function of the degree of linkage, or consistency, between the competitive priorities that are emphasized and the corresponding decisions regarding the

structure and infrastructure of operations (Stock et al 2001). Two broad categories of operations strategy seem to be accepted, namely priority and decision. The four competitive priorities (cost, quality, delivery and flexibility) have also been referred to as goals and, consequently, as performance areas (Oltra et al 2005).

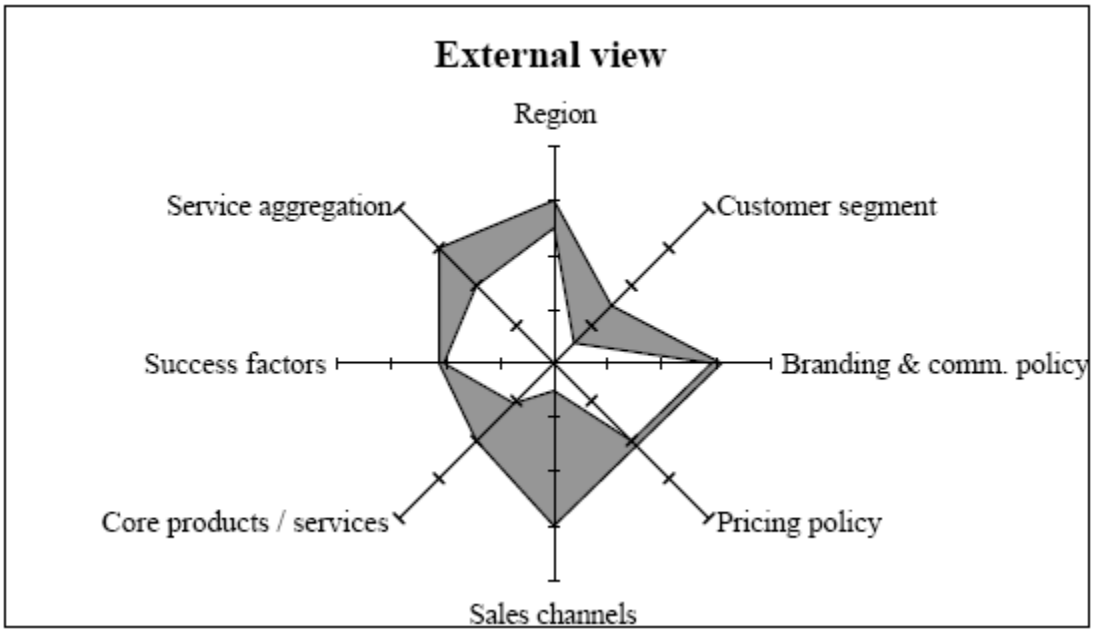

Figure 4.1.6 Cobweb diagram of external business model view (Winter 2003)

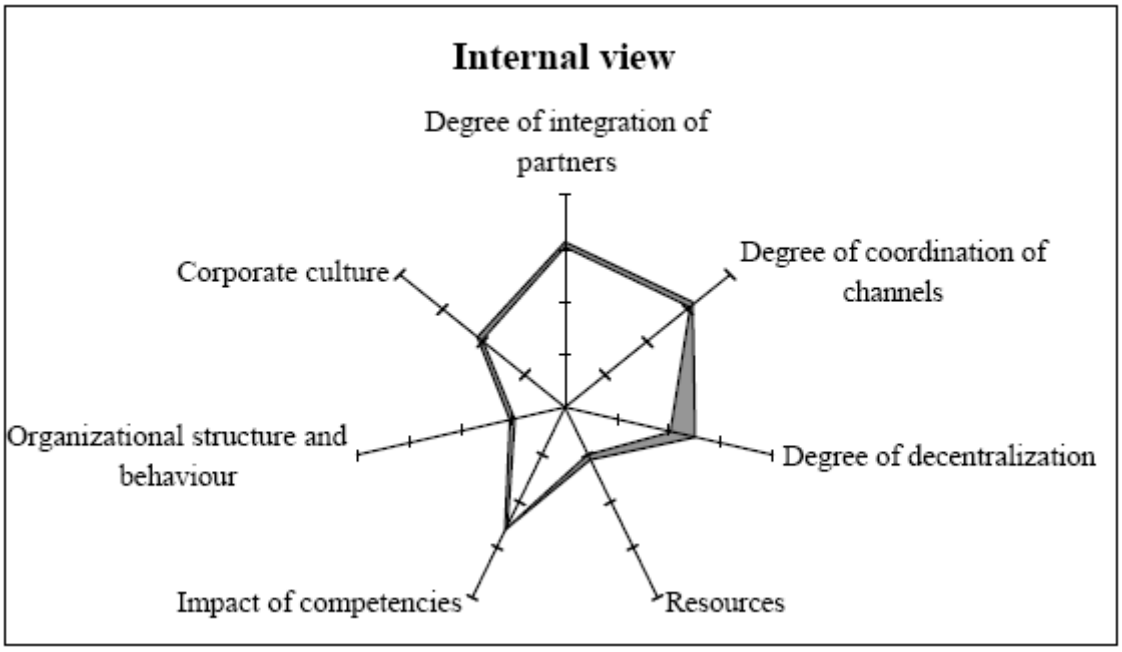

Figure 4.1.7 Cobweb diagram of internal business model view (Winter 2003)

In a study of the service sector, Winter (2003) found that business strategies could be formulated through business models. He also found that it can be compared and classified, standardized, checked for completeness and integrity and strategy making and, finally, can be linked to redesign the process and development of projects. Hansen et al (2006) brought up for discussion the adoption of strategic models, which sees the business of an organisation by realizing its potential for value creation, not fighting wars against competitors. This shift can be done without sacrificing accountability to profitability and shareholder return. In the question of how to prevent something from happening again, it should also be asked how to help organisations to fully realise their ability to create value for society.

Business models and process models differ in the types of decisions they are able to support. Distinguishing the distribution of value (business modeling) from the way processes are actually performed (process modeling) leads to a separation of concerns of projects' stakeholders. The concepts in business modeling are centered around the notion of value, while in process modeling concepts focus on how a process should be carried out in operational terms. Process models state which activities should be performed, in which order, and which objects in which order should be exchanged (Gordijn 2000).

Competitive advantage as a strategic business driver

Competitive advantage grows out of the value an organisation is able to create for its buyers that exceeds the organisation's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering prices lower than competitors for equivalent benefits, or providing unique benefits that more than offset a higher price. Thus, according to Porter (1985), there are two basic types of competitive advantage - cost leadership and differentiation. Competitive priorities may be defined as a consistent set of goals, while decision areas attempt to capture the key choices for operations strategy. Management’s strategic choices shape the organisation’s structure and process (Miles et al 2003).

Porter (1980) claimed that to obtain a sustainable competitive advantage, an organisation must reinforce its adopted strategies. Based on this landmark argument, Porter (1996) pointed out that a company might have to change its strategy if there are major structural changes in its industry. According to Porter “The essence of strategy formulation is dealing with competition” (Porter 1980). This subsequently moves into the interpretation of strong, external, influencing links of competition to organisational strategy. Respectively, Thomson (1998) considered that the geographical position of an organisation is influencing the

formulation of strategy. Competition has intensified to make each of the traditional sources (price & quality, timing and know-how, creation of strongholds (entry barriers have fallen), and deep pockets) of advantage more vulnerable. The primary goal of this new approach to strategy is disruption of the status quo - to seize the initiative through creating a series of temporary advantages. It is the speed and intensity of movement that characterizes hyper-competition. There is no equilibrium, as in perfect competition, and only temporary profits are possible in such markets (Olavson 999). Thomson (1998), however, states that the basic concept of business strategy concerns those actions and the approaches crafted by management to produce successful performance in one specific line of business; the central business strategy issue is how to build a stronger long-term competitive position.

It is then necessary to figure out where to put the efforts, and, thus, how to help shape an organisation's strategy by identifying how well-established the organisation's markets are, how powerful are the competitors and how much is unknown of the near-term evolution of the industry (Harvard Management Update 2000).

The approach by Liao et al (2000) is that a company seeks to develop one out of the six different strategy alternatives – 1) To develop higher value-added, high-tech products with a wide range of uses in commercial and industrial fields, 2) To develop higher value-added, high-tech products with a focus on limited customer groups only, 3) To provide products at the lowest feasible price in order to serve a broad range of market segments, 4) To provide products at the lowest feasible price in order to serve limited geographic markets and/or customer groups only, 5) To differentiate its products in order to serve a broad range of industry segments and 6) To differentiate its products to serve limited geographic markets and customer groups only. Noy (1998) noted that strategy is not an end in itself, but a tool to achieve the long range well-being of the company.

Warnock's (2000), important notion, however, was that understanding what strategy is has been complicated by the proliferation in the number of schools of strategic thought and by the undisciplined, even reckless, use of the term. The use of term, in the context of competitive business, only dates back to the twentieth century. Until the nineteenth century, competitive thinking in business situations was limited. Companies had an incentive to remain small and to use as little capital as possible. The scope for strategy as a shape of competitive advantage, started to become clearer in the second half of nineteenth century.

Differences in operational effectiveness were at the heart of the Japanese challenge to Western companies in the 1980's. With valuable consideration at the individual level, "Niche

Strategy" had a different segment and used a mixture from the "Porter's approach". In addition, there are six classic types of environments. Porter's book, published in 1985, resembled McKinsey's business system on the importance of regrouping business functions into the activities and thinking about links between them by connecting the value of competitive advantage position (Chemawat 2002). Under this light, it might dominate the strategic direction of R&D as well. In addition, Porter (1985) proposed that intensive study of different competitive forces in a particular industry greatly enhances a company's grasp of the competitive situation in its marketplace.

Olson et al (2005) asserted that activities geared towards the creation of competitive advantage fall within the domain of strategic behavior. There are at least four sets of behaviors that could lead to a position of competitive advantage - customer-oriented, competitor-oriented, innovation-oriented, and internal cost-oriented behaviors. While it is common for organisations to engage in multiple sets of behaviors simultaneously, most organisations have a dominant behavioral orientation. The distinctive competencies of an organisation arise from its resources, such as financial, physical, human, technological, organisational assets and capabilities (skills at coordinating resources and putting them to productive use) (Hill et al 2001).

Strategy process

Grundy (1998) adopted an important definition by stating that the 'design' theory of strategic management promotes the notion of a neat strategic analysis-choice-implementation process. The 'alternative' process-based school of strategic management, however, stresses the primacy of Incremental Management over and above, bigger and bolder strategies. There are cycles of deliberate and emergent change as opposed to linear strategy development. Implementation and strategic thinking is perceived as inseparable in contrast with the discrete phases of strategic analysis and strategic action. Figure 4.1.8 shows the approach of strategy processes by strategies.

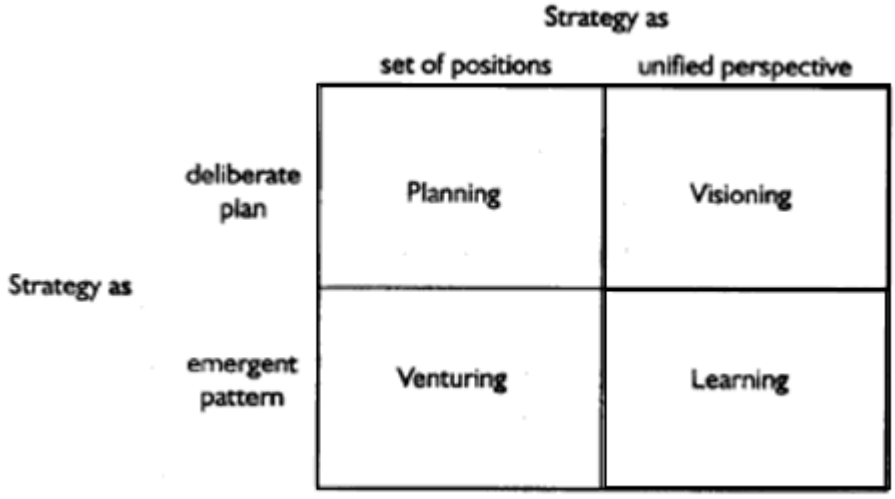

Figure 4.1.8 Strategy processes by strategies (Mintzberg et al 1998)

Thomson (1998) made a valuable statement in regards to strategy implementation being fundamentally an action-oriented, make-it-happen activity and never final. There are five conceptual and important tasks in order to implement business strategy. Strategy as a process has the following important tasks - developing competencies and capabilities, budgeting, policy making, motivating, culture building and leading. In addition, there must be continuous evaluation of performance, monitoring and adjustment making. The modern approach of succession in business management is to continually change and learn (OU T836 1999). Similarly, McKinsey's 7-S framework, developed in the early 1970's (Strategy, Skills, Structure, Style, Systems, Staff and Superordinate goals), aligns directly with recent management theories, even if it has been strongly debated about its veracity. Furthermore, the study of Massingham (2004) revealed that knowledge resources are directly related to organisations' strategy formulation and operational plans, and to the making of sensible decisions on objectives and goals.

Bantel's (1997) research came to three main conclusions. Firstly, particular product/market strategies are effective in achieving particular performance goals, to the exclusion of others. Secondly, the development and support of particular strategic implementation capabilities should be applied in view of specific types of performance goals. Thirdly, synergies between the strategy types and implementation capabilities exist and should be exploited. For example, a product leadership strategy will likely lead an organisation to high growth goals, as will the development and nurturing of employee empowerment, yet the combination of product leadership and employee empowerment causes a synergy highly facilitative of development.

Strategic decisions

Lientz (1999) declared that corporate strategy might have, as a result a business decision for an action or a planned project for implementation. Additionally, one of the primary targets of modern organisations is their own survival by increasing their potential competitive advantage and by improving the efficiency of their business processes. Organisational competitive attributes are used deliberately to determine the configuration and emphasis placed on different project management elements (e.g., strategy, organisation, process, tools, metrics and culture). In his research, Egelhoff (1993) considered emergent themes and differences between "strategy-oriented" American organisations and "implementation-oriented" Japanese organisations. He found several advantages and disadvantages of competing through strategy implementation. For example, in "implementation-oriented" environments, fewer different strategies exist, producing more direct competition and a greater emphasis on quality and cost. Schaffer (1988) identified that the strategic management of an organisation is concerned with the determination of the future directions in the market. Thomson (1998) classifies strategic management into five different tasks - forming a vision then setting objectives, crafting a strategy to achieve them, implementing and executing efficiently and effectively and, finally, evaluating performance (in order to make corrective adjustments in any of the previous tasks under the light of actual experience, changing conditions, new ideas and new opportunities).

The role of the Strategic Business Unit (SBU)

Corporate strategy is typically formulated as a strategic business unit (SBU), thinking through, and articulating, how an organisation's goals and objectives will be achieved (Morris 2005). Gupta (1987) conducted a research study on the SBU's strategic mission, competitive strategy, corporate relations openness, subjectivity in performance assessment, decentralization and effectiveness by using a regression analysis. This study involved eight organisations, 58 senior executives and senior managers and found that the role of the SBU was to build market share or to pursue differentiation as a competitive strategy. All the companies created corporate objectives, goals and strategies using processes like the strategic management processes described by Mintzberg et al (1998) and others. In strategies, importance lies in the integrated management of constraints, as a strategic element, by relating objectives, goals and measures and by setting their priorities. Objectives signify the results to be realized when they are achieved, while goals mean more specific results to be achieved and accountability for said results. In turn, policies work as a guideline to connect objectives and goals (PMCC 2001). These objectives, goals and strategies flowed into the Strategic Business Units (or equivalent organisational entities), which in turn developed their own objectives, goals and strategies, in some instances using additional processes, which were fully integrated with the business strategy processes.

The SBU's subsequently developed objectives, goals and strategies with, and for, their respective program and project teams, again, in some instances, using fully interconnecting business and project management processes (Morris 2005). Gupta et al (1984) considered effectiveness of strategy implementation through SBU's based on experienced head management with greater willingness to take risks, greater tolerance with ambiguities and dealing with various environmental complexities. Thomson (1998), however, argued that the board of directors' role in the strategic management process is to critically appraise, and ultimately approve, strategic action plans but rarely, if ever, to develop the details as their company specific knowledge is limited. Finally, portfolio analysis, in order to generate strategy recommendations, came into practice during the 1970's, especially after the oil crisis of 1973. Since then, many large companies have been forced to rethink their existing long-range plans. Portfolio analysis, however, faced a significant problem with Strategic Business Unit concepts, as the strategic recommendations were extremely sensitive to the specific portfolio-analytic technique employed. This was perceived as a great requirement for re-engineering and improvement in linkage between strategy and portfolio management. In addition, during the 1970's, traditional academic research made a number of contributions on positioning within industries. Starting in the 1970's, strategists first sought to probe the dimensions of early portfolio-analytic grids, industry attractiveness and competitive advantage (Thomson 1998).

Strategy implementation

Strategy implementation is a multifaceted and complex organisational process (Noble 1999). Implementation of strategy refers to the actions that are undertaken to attain the corporate objectives. These actions are projects that aligned with the corporate strategy resulting in implementing the right project or, in other words, being effective. The definition is inclusive as it covers all projects that are realized in the organisation, both strategic and non-strategic (Aubry et al 2007). Implementing a strategy successfully depends on selecting the right combination of organisational structure, control systems, and culture. The strategy should be simple and comprehensible, based on an identifiable core concept, with clear priorities and resource allocation (Southam et al 2005). Companies need to monitor and oversee the strategy implementation process to achieve superior profitability (Hill et al 2001). A recent Economic survey from Economist Intelligent Unit (EIU 2004), found that of two hundred and seventy six senior operations executives in the US and Canada targeted eight key industries (life sciences, energy, manufacturing, chemicals, healthcare, retail, telecoms and consumer packaged goods). A discouraging fifty seven percent of organisations were unsuccessful at executing strategic initiatives over the past three years, according to their senior operating executives. An organisations growth typically results from successful projects that generate

new products, services, or procedures (Englund et al 1999). On the other hand, Mikkola (2000) stated that the increasing complexity of technologies and new business practices, in addition to the globalisation of markets, are forcing many organisations to rely on R&D as a source of strategy for long-term growth and sustainability. In organizing implementation, it appears that establishing, or encouraging, a powerful champion for the effort helps pool resources and generates support for the strategy within the organisation. Champions are individuals who, through formal or informal responsibility, are identified broadly across the organisation as strategy leaders (Noble 1999).

Strategy implementation only works when there is a clear and shared understanding of who does what, when, and at what cost. Implementation lies at the core of strategy, and deserves as much attention as the formulation of strategy. On the other hand, implementation of even the most straightforward strategy tends to be a complex affair, requiring the intricate and dynamic interplay of people, resources, and market forces. Healthy implementation plans balance the short with the longer term, and strives to portray the implementation process. If the strategy is expected to take a long time to be implemented, overall, then programs, milestones, and resources required should reflect that span of time. Paradoxically, one of the most effective management tools for this scope is "simplicity", the distillation of disparate elements into a single, coherent document and game plan (Alio 2005).

Noble (1999) referred to a conceptualization of strategy implementation as a “trickle down” process, where senior management initiates strategies, which are then communicated through middle management to line workers. Boecker (1989) stated that the characteristics of an organisation's initial strategy influence the degree to which strategy is perpetuated. Waldersee et al (1996) examined the effects of strategy on leader behaviour and choice of implementation actions. The results from this study show that strategic context influence managers' implementation intentions. Although, at the same time, the general business literature seems to share a strong belief in the value of management support for the implementation, the most surprising result, in a study by Gottschalk (1999) on technology IT strategy's projects implementation (both from a theoretical and a practical perspective), was the relative lack of importance being placed on business management support.

The task of implementation suggests the necessary development of required budgets, people motivation, appropriate culture, communication, continuous improvement and the establishment of a qualitative relation between them. This approach has links with Shenhar's (2005) project management framework. Noble (1999) considered that one of the most daunting challenges in managing any implementation effort is the need to balance powerful

and charismatic leadership with providing sufficient latitude and autonomy for functions in performing their implementation responsibilities. Management and staff, responsible for implementation, must create a framework for Strategy metrics, supplement traditional financial measures with customer measures, process measures, human resources (learning and growth) measures, and identify responsibilities and time frames for implementation teams. Finally, the strategic implementation stage involves planning how the chosen strategy can be put into effect. On the other hand, Noble (1999) referred to the "how-to-do-it" aspects of marketing. Implementation deals with organisational issues, with the development of specific marketing programs, and with the execution of programs in the field.

A valuable consideration at the individual level is the verbalization of business strategy from Merwe (2002) that the strategy making and implementing process consists of five interrelated managerial tasks - 1) Forming strategic vision and clear mission, 2) Converting them into measurable objectives and performance targets, 3) Crafting an appropriate strategy to achieve the desired results, 4) Implementing and executing the chosen strategy, 5) Evaluating the performance, while reviewing new developments that could lead to initiating corrective adjustments.

During the implementation phase, a policy decision must be spelled out in operational detail and resources allocated among programs. Combining several of these perspectives with more of a focus on the processes involved, implementation is adoption and enactment of strategic plans. Bourgeois et al (1984) suggested five process models for strategy implementation - commander, change, collaborative, cultural, and coercive. Two fundamental variables appeared to characterize these different views, shifting continuously from the commander to the coercive model. First of all, they are a shift from centralized to decentralized decision-making for both strategy developments and implementation and, secondly, an increased blurring of the distinction between "thinkers" and "doers."

According to Wilson, (2003), figure 4.1.9 illustrates the ten steps that most organisations are following, but also shows that strategic management is a continuous learning experience, a cybernetic system with built-in feedback as well as constant adjustment.

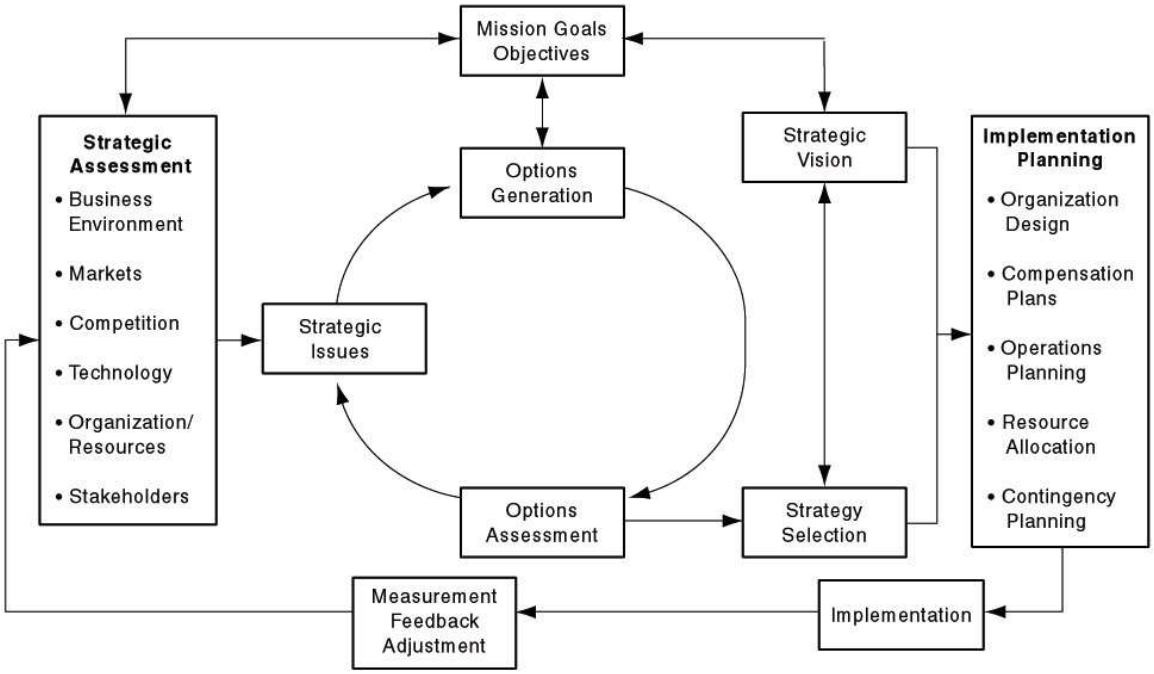

Figure 4.1.9 The flow of the Strategic Management Process (Wilson 2003)

Mintzberg, Ahlstrand, and Lampel (1998) credit strategy management as, indisputably, a dynamic process. Successful business strategies result not from rigorous analysis but from a particular state of mind. From insight and a consequent drive for achievement (often amounting to a sense of being on a mission), a creative and intuitive, rather than rational, thought process, is fuelled. Strategists do not reject analysis. Indeed, they can hardly do without it. They use it, however, only to stimulate the creative process, to test the ideas that emerge, to work out their strategic implications, or to ensure successful implementation of high potential 'wild' ideas that might otherwise never be implemented properly.

Luoma (1999) notes that today's organisations progress, in this direction, is called the strategy and implementation of strategy, although these two processes cannot be separated clearly. Noble (1999) referred various perspectives of strategy implementation, such as a series of interventions concerning organisational structures, key personnel actions, and control systems designed to control performance with respect to the desired ends. Nutt (1986), in his study, found that four general strategy implementation tactics, (intervention, persuasion, participation and edict) were used in ninety three percent of researched cases (ninety one case studies). Thus, intervention tactics and their variations were effective for all types of changes and under varying levels of time pressure and importance, suggesting that managers should use these tactics more often. The implementation stage involves converting strategic alternatives into an operating plan. Strategy creation and implementation are mutually interdependent. For any strategy to succeed, it is essential that all of the key elements of a

company's business system be effectively aligned in support of that strategy. Without such comprehensive alignment, no amount of project work can lead to success (Pietersen 2002).

Strategy and projects

Organisations are rapidly realizing that corporate strategy is delivered through projects, and, therefore, project management capability is a key to their ability to deliver their strategic intent (Crawford et al 2006). In figure 4.1.10, Shenhar (2005) is illustrating the transition from operations to projects from the 1880's to the 21st Century.

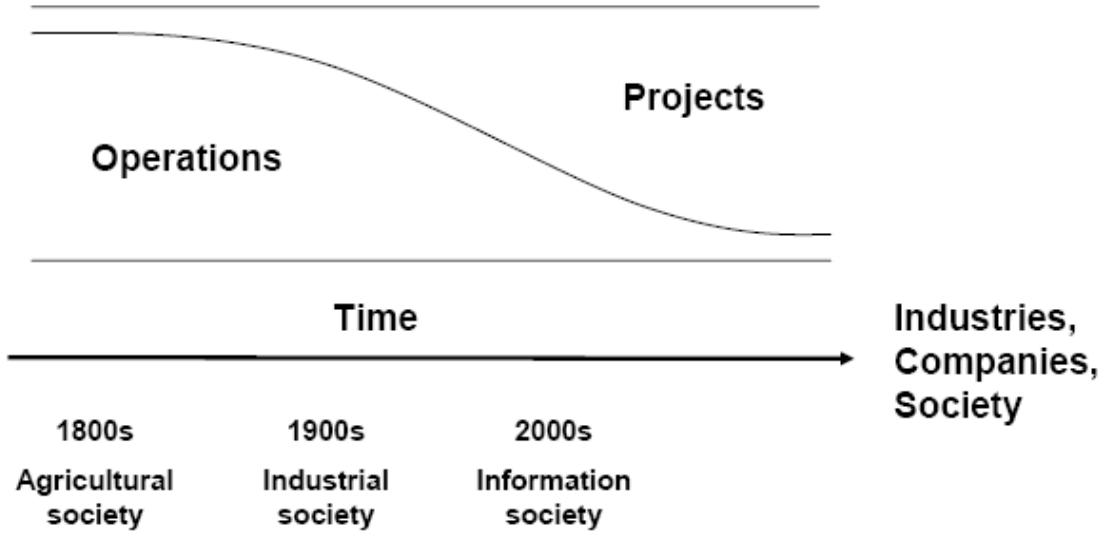

Figure 4.1.10 The increasing share of projects (Shenhar et al 2005)

In this respect, Srivannaboon (2004), in his research at Portland State University, defined the recognition of the strategic importance of project management, as there is a very strong belief by business leaders that aligning project management with business strategy can significantly enhance the achievement of organisational goals, strategy and performance. This statement cannot be verified so easily, but it implies the bias of a very strong link between the plan of business strategy and the project management context. Project management, however, is not often recognised as functional strategy and is rarely perceived as a business process, and leads to the misalignment of projects. This statement is plausible according to a survey by the Standish Group (1994). Their research states that only a small percentage (15-20%) of projects are successful. There is a wide use of Projects in all Industries, but the main problems raised are that there is a low rate of project success, most projects overrun, and many have disappointing business results, due to changes and instabilities (Shenhar 2005).

Srivannaboon (2004) found in his study that business strategy realizes its influence on project management via the competitive attributes of the business strategy (time-to-market, quality,

and cost). These are the competitive attributes of business strategy that drive the focus and the content of the project management elements. In reality, there are numerous combinations of competitive attributes that companies can use as sources of advantage to compete with their rivals. To look at another point of view, Thomson (1998), without referring to the project management context, considers “Company strategies can't be implemented or executed well without a number of systems for business operations”. This argument is confirmed with real paradigms in Thomson's (1998) book. What he means is that technology and information systems, people empowerment, motivational and rewards systems are all based on performance.

Strategic initiatives are new projects which are specifically undertaken for the purpose of making the strategy work (Porter 1991). Contradictorily, modern Strategic management includes analysis, choice and formulation, implementation, evaluation and control. Hussey (1998) presented strategic management as being concerned with deciding on strategy and planning how that strategy was to be put into effect. This approach has three main elements within it. There is the strategic analysis stage, where the strategists seek to understand the strategic position of the organisation, and the strategic choice stage where, after evaluation, the formulation of possible courses of action are decided upon.

Program and portfolio management both have a role to play in strategizing. Organizing them to play this role is a major issue that leads project management to be firmly anchored in the organisation (Aubry et al 2007). On the other hand, De Rijcke et al (1985) found several differences between the decision processes, involving strategic and operational decisions. Robson (1997) defines strategy as the pattern of resource allocation decisions made through an organisation. These encapsulate both desired goals and beliefs about what are acceptable and, most critically, unacceptable means for achieving them. Both operations strategy components can be used for defining a business operations strategy (Oltra et al 2006). This consists of the portfolio of ideas that, when fully developed, will contribute to the attainment of the strategic objectives. Good strategic management practices identify what an organisation wants to achieve (strategic objectives), and how they will be achieved (strategies), over time (Milosevic et al 2007).

For an integrated developmental strategy, technology content in development projects, of a different time span, must be carefully integrated across all projects. Product development decisions are often implemented through several projects and product roadmaps that are used to link individual development projects into an integrated whole. The interrelatedness of different simultaneous projects, with different time spans and purposes, introduces challenges to successful R&D management in terms of how projects and project portfolios are managed (Tikkanenet al 2006). Along a similar vein, Aubry et al 2007 argued that strategizing depicts

the dynamic relationship between strategy and structure. These dynamic structures are considered at the level of the organisation. This articulation refers to the assembly of multiple, mobile, structural, entities such as a project management office (PMO), portfolio and program management, project governance board and all others reflecting this relationship. Together, these entities form a complex web of relationships working in a network-like form invisible on the organisation chart.

On the other hand Hussey (1998) believes that great emphasis on the leadership of strategic change and the implementation of strategy must be added to the idea of strategic thinking. This increased expectation of strategy, and the fluidity of the business environment, leads to incongruence through the constraints of a traditional approach to projects; this causes conflict between two extremes. Some projects fix set plans and expectations in changing environments ("blue sky," strategic visions call for greater change), which often lead to large gaps between the strategic – the "what" describing the desired state and the "how" describing the methods through which these changes will occur. Often, projects are narrowed down too quickly into a closed system that does not recognize the world's current changing business environment (Cicmil 1997).

Finally, there are many alternatives to tailor project management elements to support the business strategy implementation. Organisational forms are affecting the formulation of business strategy and the project management context. According to Merwe (2002), many organisational forms have different adaptations in assisting the speeds at which strategy is implemented. Those forms of structures are in reference - a line, line and staff, functionalized, a matrix, multidimensional matrix, linking-pin, Strategic Business Units (SBUs), joint venture, laissez-faire, structures, industrial democracy and virtual structure. Chebat (1999) considers two main aspects of implementation - the structural aspects (organisational structure and control mechanisms) and the interpersonal processes (strategic consensus-autonomous strategic behaviors).

Factors of strategy implementation

Lorange (1998) identified the factors producing obstacles for strategy implementation - lack of internal (from top to bottom) culture growth, organisational complexity, traditional remnants cultures, lack of speed of urgency and lack of cost competitiveness. There are different environmental conditions under which different organisations are operating, and attempt to match these with appropriate approaches to management and strategy. In addition, environmental turbulence is influencing the strategic management and planning on five levels. Those levels are - repetitive, expanding, changing, discontinues and surprise, which is

the most difficult. In theory, organisations are operating under all levels of turbulence. There has also been an evolutionary movement from the lower to the higher levels. (Hussey 1998).

According to Wilson (2003), the primary concerns of strategy implementation were the following: 1) Identifying and acting on company wide strategic issues, 2) Deploying and redeploying assets within the company's portfolio, 3) Exploit the synergies across business units and, as Bamford (2003) stated, organisations create strategic structures and routines to foster excellence across close links to corporate business development, by a strategic alliance formation though many other companies based on three main elements - strategy, partner selection, and deal structure. Enter in major new areas (outside the charter of existing business units), 4) Reship and renew the corporation (structure and culture), 5) Increase the value of shareowner investment and 6) Provide guidelines to help business units develop their strategies. From another point of view, Bantel (1997) has pointed out that synergies developed between strategy and implementation capabilities have an important influence on the success of an organisation. Hussey (1998) considered strategy as the driver, interacting with the other organisational components to produce results. Even poor interaction will lead to results or to increased chances of achieving the needed results. The components of strategic management are tasks, people, reward systems, control systems, information systems, decision-making systems, culture and structure. The success of strategy demands the implementation of certain mechanisms, such as those related to control of performance. In other words, to use Day's typology, the choice of “outside-in” processes impact on the choice of “inside-out” processes (Chebat 1999). The modern practical, repeated and interlinked nature of strategizing and organizing carries with it a broad conception of strategy work and skills that goes beyond traditional analysis (Whittington et al 2006). Traditional approaches to strategy stress the creation of advantage, but the concept of hyper-competition teaches that strategy is also the creative destruction of an opponent’s advantage. This is because in today's environment, traditional sources of competitive advantage erode rapidly, and sustaining advantages can be a distraction from developing new ones (Olavson 1999).

On the other hand, Alio (2005) defined the requirements of strategy implementation as refining vision and strategy, integrating implementation programs, ratifying the strategies and implementation programs and finally, establishing a common language with all involved with this process. Similarly, McAdam et al (2002) argued that strategy change is affected by factors such as the changing nature of work, increasing competition, specific improvement initiatives, national and international quality awards, changing organisational roles, changing external demands and the power of information technology. Conversely, Chan et al (2005), in blue ocean strategy, inserted three mutually reinforcing elements that define “the fair process”

of strategy implementation. These are engagement, explanation, and clarity of expectation. Apparently, Hussey (1998) suggested that an important element in the whole strategic management process is the development of a vision for the organisation by top management. He stated that successful implementation depends on getting the following four stages right. 1) Envisioning is the process of developing a coherent view of the future in order to form an overarching objective for the organisation. It blends the leader's view of external opportunities with the different road internal competencies and resources relate to these opportunities. 2) Activating is the mission of ensuring that others in the organisation understand, support, and eventually share the vision. 3) Supporting is about motivating and inspiring people to achieve more than they otherwise might have believed possible, by providing the necessary moral and practical help to enable this to happen. 4) Installing is the process of developing detailed plans to enable the strategy to be implemented and controlled. There is nothing unique or special about the instruments such as plans, budgets, critical path analysis, Gantt charts or other tools that have to be developed to ensure that nothing is overlooked, and everything is coordinated. These are all the regular instruments of management. Also, ensuring plans, structures for implementation, and policies may be formulated, and on paper, the organisation may have covered everything. Yet, this is not enough, and consideration must be given to the monitoring and controlling processes that will ensure that actions are correctly undertaken and results are as expected. Strategic control is considered the key element for the integration of an organisation's value chain activities (Galliers et al 2002).

In addition, recognizing is to give recognition to those involved in the process. Recognition may be positive or negative, and should be used to reinforce the change, and to ensure that obstacles to progress are removed. Strategic control provides the monitoring and incentive systems necessary to make an organisational structure work as intended and extends corporate governance down to all levels inside the company. In this case, the main kinds of a strategic control systems are output control and bureaucratic control, rewards systems, and control through information technology systems (Hill et al 2001). A study from Olson et al (2005), involving over two hundred senior managers, demonstrated that overall organisation performance is strongly influenced by how well an organisation’s business strategy is matched to its organisational structure and the behavioral norms of its employees. This investigation identified a taxonomy comprised of four different combinations of structure/behavior types, which they label Management Dominant, Customer-Centric Innovators, Customer-Centric Cost Controllers, and Middle Ground. These alternative structures/behavior types are then matched with specific business strategies (Prospectors, Analyzers, Low Cost Defenders, Differentiated Defenders) in order to identify which combinations of structures and behaviors best serve to facilitate the process of implementing a

specific strategy. A cluster analysis, using the three structural variables (formalization, centralization, specialization) and the four behavioral variables (customer, competitor, innovation, internal/cost orientations), produced four organisational archetypes, 1) Management Dominant organisations, 2) Customer-Centric Innovators, 3) Competitor-Centric Cost Controllers and 4) Middle Ground (Organisations that seem to have no distinctive characteristics). Management processes reflect a resource-based view with a focus on, and utilization of, the "know–how" of key people in the organisation. In today's knowledge-based organisations, the link between the functions of strategic planning and human resources management (HRM) is vital (Lorange 1998). In respect of Lorange's (1998) standpoint, today's organisations have been re-engineered relatively flat, and are typically heavily networked, requiring a new kind of approach in strategy implementation. He pointed out that today's strategic initiatives must be formed on a project-by-project basis, task forces (including ad hoc operational human resources) and less strategic planning through formal operating functions. According to Milosevic et al (2007), the mission interconnects all organisations' members with the sense of shared expectations and a common purpose, direction and goals. Hussey (1998), on the other hand, suggested five areas of critical importance in successful strategic management, none of which should be neglected. In the centre, and affecting each of the other factors, are the capabilities of the business leaders. Creativity and vision is required, and then analysis is needed again to examine the likely outcome of the strategy. Organisational vision is a concise word picture that describes what an organisation aspires to become, giving employees, at all levels of the company, a clear direction to follow (Pietersen 2002). Strategy is the driving force that shapes the future nature and direction of a business. It defines the corporate vision and the means that will be employed to achieve that vision (Wilson 2003). The way in which strategic decisions are taken, and the process an organisation uses to arrive at strategies, will also affect the success of those strategies. According to Warnock (2000), strategy is a design, or plan, that explains how policy is to be achieved. To explain further, an organisations' policy defines a company's excuse for applying such a business activities and sets the parameters within which it intends to achieve its purpose.

Finally, without resources, strategy can achieve nothing. In much the same way, Olsson (2005) defined three strategies to achieve flexibility in the decision process. Firstly, a ''late locking" of project concepts, specifications and organisation can be used. The second strategy must be related to a continuous step-by-step locking of the project by a successive commitment to projects. The third strategy must be found in contingency planning, where a set of base plans are defined, but also a set of alternative plans that can be activated if needed. Another approach by Miller et al (2004) was that there is no organisation where all decisions

were equally successful. In addition, Stagner (1969) identified three important dimensions of a successful decision-making processes - managerial cohesiveness, formality, and centralization. Lastly, the best strategy in the world will be useless if it is not implemented. The power of using criteria, that is tightly linked with strategy and known by everyone in the organisation, is the mitigating effect it has to guide behaviour in constructive ways. Having a process means it can be replicated and improved, over time, until it is optimized. It also means other people can learn the process and coach others, thereby creating a learning organisation (Englund et al 1999). Thomson et al (1998) suggested developing required budgets, to support the implementation, in order to assure people's commitment and to establish a continuing improvement process, such as TQM, in order to build a supportive organisational and ethical culture. For most organisations, financial and economic goals greatly influence their strategic directions. The strategy mission statement linked with plans through sales and profits, based on organisations like Procter and Gambles and profit as a superior rate of return from Merck organisations. Lastly, Englund et al (1999) suggested flexibility in different organisational circumstances. Strategy implementation is action-oriented. The previous can be identified as influencing variables and prerequisite factors, and focuses on the goals of what an organisation *should* do rather than limiting choices by only considering what the organisation is *capable* of doing. Whittington et al (2006), argued that strategy as practiced, as researched and as taught, needs to give more weight to the everyday, yet artful, practicalities by which strategizing and organizing is actually carried out. Grundy's (1998) position is that the boundaries should be clear between strategic analysis and action, especially in cases of major cross-functional projects like Total Quality Management (TQM) & Business Process Re-engineering (BPR). To conclude in turn, a research study by Kaplan et al (2001) of two hundred and seventy five portfolio managers showed that the ability to execute strategy was more important than the quality of strategy itself.

The missing link and upper management influence

Noy (1998) stated that 'Total Business Strategy' is the missing link between the aloof 'Mission Statement' and the particular 'Functional Strategies' that will make strategy formulation more implementation oriented. The mission statement serves to set the organisational context within which strategic decisions will be made. All projects need some type of operational infrastructure to operate efficiently. Strategy and strategic management are invariably placed at the top of the hierarchy of the management pyramid. Strategic management is presented as different with the main differentiator being that it determines the future success of organisations (Chaharbaghi 1998). Chaharbaghi (1998) also published an important article stating that the position on strategy has recently become the most important item on the management agenda without a clear explanation of its meaning, thus creating

confusion and despair, rather than helping organisations to formulate and implement strategies. Siciliano (2002) suggested that an organisation's board of upper management is responsible for setting organisational direction, strategy formulation, analysing company strengths and weaknesses, reviewing environmental trends for threats and opportunities, reviewing and revising or creating an organisation's mission statement, identifying strategic issues and for developing strategic initiatives. Chester Barnard, a top executive of AT&T, suggested that managers should pay exceedingly close attention to "strategic factors". Almost every strategic management theory, and nearly every corporate planning system, is based on a strategy hierarchy in which corporate goals guide business unit strategies and business unit strategies guide functional tactics (Hamel et al 1989). Strategic consensus among middle-level managers is related to involvement in the strategic process but not to organisational performance. On the other hand, Noble (1999) argued that, as the formulation aspect of strategy is most often in the domain of senior managers, implementation appears much more closely tied to the daily activities of middle managers. Thus, if there is a demand to improve our understanding of the process and key success factors involved in implementation, it appears essential to better understand the daily lives of middle managers. The managerial interventions align organisational action with strategic intention. The process turns plans into action assignments and ensures that such assignments are executed in a manner that accomplishes the plan's stated objectives. Implementation is about turning drawing board strategy into marketplace reality. Stagner (1969) in a study using a correlation analysis and involving two hundred and seventeen vice presidents and top executives, a positive correlation between executive satisfaction on decision-making process and profitability was found. Finally, Miller (2002) referred that customer need, process improvement and employee satisfaction may be key components within corporate strategy, but have been difficult to consider, or even overlooked, within current project selection and decision-making processes.

Strategic efficiency

Hill et al (2001) stated that a company can increase efficiency through a number of steps - exploiting economies of scales and learning effects, adopting flexible manufacturing technologies, reducing customer defection rates, implementing "just-in-time" systems, getting the R&D function to design products that are easy to manufacture, upgrading the skills of employees through training, introducing self-managing teams, linking pay to performance, building a company wide commitment to efficiency through strong leadership, and designing structures that facilitate cooperation among different functions in pursuit of efficiency goals. Cooperation and effort among many, if not all, organisational functions are the methods to succeed at implementing corporate strategy (Noble 1999).

Strategy and organisational cultures

In another approach, Anderson (2003) categorized generic organisation's cultures into the tough guy-macho culture, the work-hard or play-hard culture, the bet-your-company culture and the process culture. In addition are the following typologies based on different dimensions of culture - the evolution dimension (how cultures change over time), the internal dimension (how the internal circumstances of an organisation affect its culture), and the external dimension (how an organisation's environment affects its culture). The organisational culture affects project results, but the existence of a strong task culture is not the decisive factor in most cases. This is based on the nature of the transactions associated with information exchange in an organisations market (the rational), adhocracy (the ideological), clan (the consensual), and hierarchy (the hierarchical).

Strategy alignment and communication

In his research, Noble found that, among the middle managers, there is often a high level of frustration when people are handed unstructured assignments. The translation of strategy into actions means communicating and monitoring implementation in terms that everyone can understand (Alio 2005). Floyd et al (1992) suggested a typology of four on middle management strategic roles - championing alternatives, synthesizing information, facilitating adaptability and implementing deliberate strategy. According to the results of their research, weak support was found among top management for those roles. Subsequently, Kaplan et al (2001) argued that the key for implementing strategy is to have everyone in the organisation clearly understand the underlying strategic hypothesis, to align resources with this hypothesis, to test the hypothesis continually and to adapt, as required, in real time. On the other hand, a recent survey of the Intelligent Unit (EIU 2004) showed that only half of the respondents in the Economist survey report worked for organisations that were successful in communicating strategic initiatives to front-line employees.

4.2 Operating plans

The formal approach in business planning began in the 1950's. Since then, a wide range of approaches has been developed. The term 'corporate planning' had almost taken over by the end of the 1960's. It was linked to both long and short-term plans, which enabled management to set strategies that would take the organisation to a different and predetermined future. Mintzberg (1994) considered strategic planning as not strategic thinking, but as strategic analysis and synthesis. Lorange (1998) had additionally noted that traditional types of strategic planning were degenerated through bureaucratic and long-term extrapolation activities and the absence of human involvement. A key element in any business planning process is to set business or organisation objectives (Ward J, et al 2002). Operating planning gives a rise to plans and forecasts which flow back to the strategic planning process, where they are considered in the light of the company's objectives and strategy and may be accepted, or returned, to operating managers for refinement. A similar gap exists in the research. In turn, the considered plans of the operating units may lead to amendments to the thinking at a strategic level and to changes in the strategic plans. Porter (1998) suggested that the organisational strategy may have been developed explicitly through a planning process, or it may have evolved implicitly through the activities of the various functional departments. An organisation's mission is generally interpreted, in management theories, as the concept to show the rationale for corporate existence and business direction. In program management, however, the mission refers to directions for achieving a strategic mission required in a program. The mission is a guide of the demand that directly represents a strategic plan, while a vision serves as a guide for thought and action to achieve the mission. On the other hand, a mission and vision are co-related as well. They are sometimes described with the same meaning, but the mission indicates objectives of implementation, goals, policies, mutual relationships of interests and serves as action guidelines for project teams (PMCC 2001).

The strategic management process is about moving the organisation from their present position, to a future strategic position, in order to exploit new products and markets. Hence, the strategic analysis process investigates the current and future positions. The strategic objective setting process is about planning the trip, its duration and effort. The strategic implementation process is about getting the organisation to move (Merwe 2002). Planning, according to Mintzberg (1994), seems to appeal to the leader's interest in control and, concurrently, an aversion to risk, avoidance of creativity and truly "quantum changes." The link between planning and control then leads to the pitfall repeated throughout history of planners who characterize their period as the most turbulent. The approach to a strategic

planning process, showing a flow from vision to implementation, feedback and control, is illustrated in figure 2.4.1 (Olavson Thomas 1999).

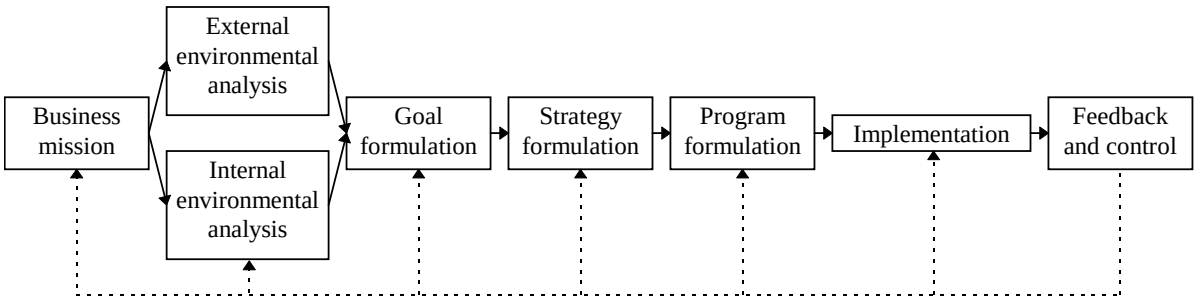

Figure 4.2.1 The business strategic planning process (Olavson 1999)

Jamieson and Morris (2004) suggested that most of the components comprising the strategic planning process internal analysis, organisational structures, and control systems have strong links to project management processes and activities. As a result, these strongly influence an organisation's intended business strategies. According to Hussey (1998), a strategic plan must be identified and stated clearly, be consistent with environmental forces as well as match corporate competence, culture and resources. Industry structure, realities of the market and competitors, should be taken into consideration, as should having the appropriate geographical scope and acceptable risk levels. Lastly, a time horizon and consistency should be considered in order to enhance shareholder value. Nutt (1983) took the position that implementation prospects improve when the strategy planning process is linked to implementation and when an implementation approach is tailored to fit the internal environment of an organisation. Chan (2005), in blue ocean strategy, considered that a strategy canvas does three things. Firstly, it shows the strategic profile of an industry by depicting very clearly the factors (and the possible future factors) that affect competition among industry players. Secondly, it shows the strategic profile of current and potential competitors; identifying which factors they invest in strategically. Finally, it shows the company’s strategic profile or value curve, depicting how it invests in the factors of competition and how it might invest in them in the future.

Although strategic planning for the methodology, and execution of the methodology, does not guarantee a profit or success, it does improve the chances of both. Strategic planning, for excellence in project management, needs to consider all aspects of the company from the working relationships among employees and managers and between staff and management, to

the roles of the various players (especially the role of executive project sponsors), to the company's corporate structure and culture (Kerzner 2001). Although the strategic planning phase puts more concentration into strategy (in relation to the business environment), markets and competitors, the most common process is still based on the preparation of corporate-wide plans, with submissions from the various business units being discussed by the top management of the organisation (Hussey 1998). Conversely, Mintzberg (1994) examined two dimensions of the fallacy of planning formulation, 1) the possibility that formal systems of planning creates dynamics which reduce the possibility of truly being strategic and 2) the possibility that planning processes have never really been formal (other than to follow a checklist). From yet another perspective, St. John et al (1991) research showed that those organisations that made more frequent use of planning techniques experienced higher levels of interdepartmental consensus. In addition, consensus between departments was strongly related to marketplace performance reputation.

Planning can occur on at least two levels – a corporate level or a Strategic Business Unit (SBU) level. At the corporate level, the focus is on managing a balanced portfolio of profitable growing businesses, by adding value to shareowner investment (Wilson 2003). Formulation and implementation are also interdependent. They are part and parcel of an overall process of planning-executing-adapting - planning affects execution. The execution of strategy, in turn, affects changes to strategy and planning, over time. This relationship between planning and doing suggests two critical points. First, successful strategic outcomes are best achieved when those responsible for implementation are also part of the planning, or formulation, process. The greater the interaction between ‘‘doers’’ and ‘‘planners’’ (the greater the overlap of the two processes or tasks) the higher the probability of successful implementation Second, strategic success demands a simultaneous view of planning and doing (Hrebiniak 2006). Lorange (1998) suggested that organisations should improve the focus on finding potential, unique business opportunities and the effectiveness of implementation, by using task forces. Pinto et al (1990) argued that the relative importance of planning and tactical factors is contingent upon the type of project success measure employed. Mintzberg (1994) found that managerial work appears to be more "simultaneous, holistic, and relational than linear, sequential and orderly” This would seem to suggest that managers would be more likely to find a "disorderly" and creative planning process more familiar and related to the real world of the organisation. Another view of strategic approach from Mintzberg (1994) on internally generated growth of strategic planning, is the following archetypes - pioneer, rapid expansion, domination and restructure. Lorange (1998) presented five suggestions for strengthening the planning and control process in order to be more responsive to the unique needs of the focus required for each strategic archetype - 1) Identify

and articulate the main tasks for each strategic context, 2) Compose an appropriate management team, 3) Enhance a unique dominant learning mode, 4) Top management's mode of interaction needs to be tailored and, 5) Instil a more flexible, multifaceted approach to strategic control. Strategic planners' are changing and are now involving both an increased cooperation with human resources management and control functions, and have a primary responsibility for ensuring the dynamic, tailor-made management process support is there for each strategic initiative.

Olavson (1999) proposed that the resource-based view (RBV) of the organisation, as a framework, combines the internal (core competence) and external (industry structure) perspectives on strategy. Like the frameworks of core competence and capabilities, organisations have very different collections of physical and intangible assets and capabilities, which RBV calls resources. The aim of strategic planning is to shape and reshape the company's businesses, and products, so that they yield target profits and growth. Good strategy requires continual rethinking of the company's scope, to make sure it's making the most of its resources and not getting into markets where it does not have a resource advantage.

From an analysis of theory, according to Wilson (2003), there are three parameters for the conversion of the proposed strategy into action - implementation plans, forecast financial implications, and creation of contingency plans. In addition, there are three types of information influencing a strategic planning process - information for assumptions, information for decisions and information for success factors (Hussey 1998). Moving from strategy to planning, implementation focuses on the execution of these operational plans. In this case, the implementation of strategy is driving down deep into the organisation by emphasizing, once again, the requirement for persistent communication to those charged with implementation.
Those that are responsible for this activity, therefore, must be thoroughly conversant with required details, have to be committed and must make implementing strategy their own goal (Wilson 2003).

Managerial actions, such as planning and resources allocation, appear to be necessary, but not sufficient for ensuring decision achievement. Managers need to ensure at least three further conditions are met - decision prioritization, to make sure of political acceptability, and to not change organisational structures unless really necessary. Knutson et al (1991) identified two business decisions needed to be made when applying planning techniques - making

adjustments to schedules in order to meet mandated target dates and levelling or smoothing out overloaded resources.

According to Hussey (1998), there are many factors influencing a strategic plan. Uncertainty and change are factors that must be taken in account through sensitivity and risk analysis, as there is some doubt that a highly formalized process of corporate planning can be flexible enough to cope with highly turbulent environments. The study by Busby et al (1999) found that planners are reluctant to accept the uncertainty with an inadequate appreciation of randomness or uncertainty that is inherent in projects activities, as is sometimes exacerbated at the organisational level. Organisations fail to maintain a clear distinction between goals and predictions, to calibrate estimating judgments, and to misattribute the causes of surprise. Some of the findings reflect basic psychological and organisational effects, and, for a number of reasons, the most promising remedy is better training of staff on effective strategies for estimating judgments. Knutson et al (1991) argued that organisations have frequently produced the correct plan documents but have failed to execute a significant percentage of the projects according to the plans. This happens when the process used to produce the plan is defective and, therefore, the plan cannot be achieved, but of coarse there are many other factors and reasons for plan failure.

Lovell (1993) argued that understanding the power environment within the organisation, and the position of the participants, is crucial when dealing with some issues. Hussey (1998) suggested that the earliest concepts of planning were predicated on the assumption that the principles and concept were right for all businesses, although there might be some need for minor adaptation to fit the style and circumstances of particular organisations. In this way, there is a link between all the factors, which go into the making of strategies, and the thoughts of managers down the line. Moving from plans to actions, and controlling against results, is not an easy task in any company, and may become extremely complex in large or diversified organisations (Grundy 2001). A key task for a strategic planning process is to assess when it is required to re-classify the strategic initiatives, and opportunities, and to re-modify the strategic plans and, consequently, the linked processes of PM context. Today, strategic planning has shifted from supply-driven to demand-driven (Lorange 1998). Olavson (1999) presented strategic scenarios as powerful vehicles for challenging our mental models of the world. The value is not in predicting the future, but in making better decisions today. The decision makers could be individuals, businesses, or policy makers. Scenarios are a nice complement to the principles of decision analysis - the decision analysis cycle ends in decisions and insights, while the scenario process ends in a scenario.

According to Mintzberg (1994), the three assumptions underlying strategic planning are 1) assumptions of formalization in which the strategy making process can be programmed by the use of systems, 2) assumptions of detachment in which "thought must be detached from action, strategy from operations, ostensible thinkers from real doers, and, therefore, 'strategists' from the objects of their strategies" and 3) assumptions of quantification in which "the strategy making process is driven by 'hard data,' comprising quantitative aggregate of the detailed 'facts' about the organisation and its environment".

Englund's (1999) study on HP, and many other companies, found that they "master adaptive innovations and consistently execute again and again and again in the context of relentless change". Staying on top means remaining poised on the edges of chaos and time. These edges are places of adaptive behaviour and are also unstable. This instability means that managers have to work at staying on the edge. According to Englund (1999), a plan could be indispensable as a strategic guideline, but someone must be prepared to be adaptable and make the needed changes to that plan and then, communicate these changes clearly to those involved.

Hussey's (1998) survey conclusions showed that organisations tend to take one of two distinctive approaches to planning. The first is an unplanned, opportunistic approach and the other is a systematically planned approach. If an organisation fails to plan any phase of the program, it is likely to forgo planning altogether. Siciliano (2002) explained that planning teams and boards of directors focus primarily on developing strategy and less on actually implementing it. A gap exists between the attention planners pay to formulating strategy and the amount of time they spend considering how to implement it. A similar gap exists in the research. Simkin (1996), based on the observational data of his study, found a series of strategic planning pitfalls. As a result, he contended that an organized, ongoing program of guidance and control could overcome many problems encountered in strategic planning and implementation. The benefits of this program are said to be communication, training, motivation, marketing intelligence and the achievement of a market orientation. In addition, Simkin suggested that proper structuring of planning processes maximizes the chances of successful implementation. Sandy (1991), in his study, presented eight common breakdowns between strategy planning and implementation - 1) Underestimating the voice of the customer, 2) Information is not organized for action, 3) The process of reaching conclusions does not involve the right people, 4) Fragmented, piecemeal, or insufficient solutions, 5) No champions and few reasons to take on that task, 6) People you count on do not understand how to succeed, 7) Nobody keeps score, and 8) Nothing happens when you win. Recognizing the failure of traditional strategic planning, many companies, as well as the consultants and

business theorists who advise them, have been searching for ways to forge a more vital connection between corporate thinking and corporate action. One positive result has been the creation of a body of research and theory on what has been called the “learning organisation” (Pietersen 2002). If an organisation *does* plan a phase, it is likely to make a complete strategic and operating plan and significantly outperformed the non-planners. Organisations, which *do* plan, tend to use these plans and to exhibit deliberate and systematic acquisition behavior. Long range planning promises more results. Moreover, since studies by others have produced similar results, the weight of evidence is mounting rapidly. Companies engaged in long range planning are using a tool that has demonstrated its worth. Mintzberg (1994) stated, “The experiences of what has been labeled strategic planning, teaching us that there are limits”. These limits must be understood, especially when dealing with complex and creative activities like strategy making. On the other hand, Mintzberg (1994) provides the view of planning presenting sample evidence that most organisations, and organisational planners, enter into planning with little understanding of the definitions and various purposes of planning. Miller et al (2004), from the analysis of study cases, found that there are two implications for planning. First, planning is not indispensable to a successful implementation, as an organisation can move into unknown territory without thorough targeting, detailing of necessary action, or sourcing. Second, contrary to the views of ‘planning school' proponents, planning, even when possible, is not intrinsically sufficient, but is a means of gaining acceptance for what has to be done.

In another approach, Jelinek (1979) states that the notion of “Institutionalizing innovation” provides the best and carefully reasoned argument in favor of strategic planning; a natural evolution in organisational behavior. What Frederick Taylor (an American mechanical engineer) in 1856, and others, did for the routine work and systematization of manual labor in industry is now being replicated in the strategic planning movement as a way to introduce systematic management for the top tier of the organisational hierarchy. According to this viewpoint, strategy processes must be detached from operations, formulation from implementation, (thinkers from doers) and strategists from the objects of their strategies (Mintzberg 1994). This leads to the conclusion that analysis is not synthesis and strategic planning is not strategy formation. In short, "analysis is not a substitute for synthesis”. No amount of elaboration will ever enable formal procedures to forecast discontinuities, to inform managers who are detached from their operations, to create novel strategies. Ultimately, the term 'strategic planning' has proven to be an oxymoron by this approach.

The data presented by Miller et al (2004) indicated the link with achievement is not direct, suggesting that acceptability performs a mediating role. The activities of planning and

organizing, do not, by themselves, lead to success. Instead, by conforming to normative views of how strategy ought to proceed, planning appears to induce confidence in the process, evidenced by high levels of acceptability from those involved with Long Range Planning. The importance of planning lies as much in its latent function in creating a favorable disposition towards implementation as in its manifest function in detailing implementation activities. Planning is a necessary part of this approach to success, but it is not sufficient in itself.

Verzuh (2005) classified three tiers of management in the Enterprise Project Management Model (EPMM), which forms the link between project resources and organisational strategy. At the lowest level, project management focuses on the efficient execution of selected projects. The next tier, program and multi-project management serves to coordinate projects and the resources that all projects share, particularly the people. The highest tier, project portfolio management, connects the selection of projects and programs to the strategic goals of the organisation. Project, program, and portfolio management combine to align every resource on every project with the goals of the enterprise. According to Morris's et al (2004) study, key strategies are translated into operational and tactical project plans at the departmental level. Managers and staff are creating plans needed to realize the key strategies that can support the mission. Also, project plans, and their supporting initiatives, define total organisational effectiveness. Projects may be identified at operating levels and give rise to further project plans (Hussey 1998). Strategies, for the attainment of the project objectives, should similarly be developed in as comprehensive a manner as possible, right from the outset. This means that, at the pre-feasibility and feasibility stages, for example, industrial relations, contracting, communications, organisation, and systems issues should all be considered, if not elaborated on, as well as the technical, financial, schedule, and planning issues. Successful organisations should start dynamically with strategic planning. Vision and mission are driving the development of key strategies to move the organisation from the current state to their desired future state, using improvement projects. Similarly, strategic planning for project management is the development of a standard methodology for project management, a methodology that can be used over and over again, that will produce a high likelihood of achieving the project's objectives (Kerzner 2001). One primary advantage of developing an implementation methodology is that it provides an organisation with a consistency of action (Kerzner 2001). Metaxiotis et al (2005), in their study, proposed the Goal Directed Project Management (GDPM) model, which implies a planning process, on both levels, involving the different parties so that a common understanding of task and the objectives is reached, and ownership of the plans is gained. GDPM methodology comes from IT project management and is particularly suited for small and medium-sized projects. It allows different levels of formalism and is suitable for any kind of project. Milestones are

distributed over the result paths, arrows indicate dependencies between the milestones and target dates are initially assigned to milestones, and are then finalized, after being checked against the activity plan. The method of organizing projects requires a thorough discussion of what the people involved in the project will do. Finally, control at a global level includes controlling milestones, and, at a detail level, controlling activities. In order to control activities, reporting is performed on seven different matters, such as use of resources, time schedule, quality, responsibility chart, changes or additions, waiting time and special problems.

Similarly, (OPM3 2003) by the Project Management Institute (PMI), the Organisational Project Management Maturity Model has introduced the organisational project management context in three sections - Portfolio Management, Programme Management and Project Management. These tiers will be analyzed, in detail, in the following chapters.

4.3 Portfolio management

Portfolio management is the second strategic element in an integrated management system, after strategy formulation, in relation to operation planning. It is defined as a dynamic decision process that identifies and prioritises products, services, or infrastructure programs that best support attainment of the strategic objectives (Milosevic et al 2007). The term "portfolio management" originated in financial asset management. Fifty years ago, the economist Harry Markowitz introduced the idea (and won the Nobel Prize in 1990) as a way to manage a set of financial investments. His conception included the mathematics to evaluate each individual investment (evaluating returns and risks) in a consistent way (Benson 2004). Consequently, there must be clarification between financial portfolio management, which concerns stocks, bonds, mutual funds, commodities and others, and projects portfolio management. Project selection methods are benefits measurement (as comparative approaches, scoring models, benefit contribution and economic models), or mathematical models using linear, non-linear, dynamic, integer and multi-objective algorithms (PMI 2004). The focus of program and projects' portfolio management literature has been on balancing the portfolio of strategic projects, to ensure alignment with organisational strategy. This means enabling coordinating interfaces between projects, particularly on prioritizing projects as a basis for sharing resources in order to enable the sponsoring organisation achieve their strategic objectives (Crawford et al 2006). PMI (2004) defines portfolio as the effective assessment, examination, efficient use of resources, balancing and management of a collection of projects or programs (related or not), and other works of specific goals (that are grouped together) in order to meet strategic business objectives. Some authors place project portfolio as a major interface with corporate strategy. This suggests a cascade from global strategy down to portfolios, from portfolios down to programs, and then from programs down to individual projects. In this sense, programs are at the heart of the project portfolio. Several methodologies have been proposed to balance a portfolio of projects. From this perspective, project portfolio context is an essential structural component. Organisations use mediating processes of strategic planning and project portfolio management at a strategic level. They do this in order to interpret their business strategy in the context of project management. Organisations are initiating and selecting projects for their project portfolio to fulfill business needs. The procedures for portfolio management mean to reasonably select an optimum combination of projects to reap the maximum value of a mission (PMCC 2001). A standard life cycle is then followed, that includes project planning and project monitoring (the primary mediating processes at the project level), to ensure the quality of the alignment between project management elements and business strategy. One of the major control mechanisms organisations used to ensure that projects align with expectations, as the project progresses

from one project phase to the next, is the stage gate. This mediating process provides strategic feedback that can lead to emergent strategy (Srivannaboon 2004).

Portfolio management is the link between business aspirations and reality. It is a governance method, using a centralized management of the collection of active grouped projects, programs, sub-portfolios and other work, which reflects and affects business strategy, in order to facilitate effective management to meet strategic objectives at a specific time. It reflects, and represents, investments made, or planned, which are aligned with business strategic goals and objectives. These can be grouped (are quantifiable) and can be measured, ranked and prioritized (PMI 2006). Knutson et al (2001) characterized portfolio management as the way in which decision makers align projects with the organisational strategy just as strategy is the way the organisation aligns itself to the wider marketplace. Governance practices, in programs and portfolio management, differ significantly between high and low-performing organisations (Blomquist et al 2006). Project Portfolio Management (PPM) is a set of processes to analyse, recommend, authorize, activate, expedite, and monitor projects to meet organisation improvement goals (Dinsmore et al 2006). In this respect, Chin (2004) acknowledged, in his book "Agile strategy on PM", that portfolio management is a vital linkage between business strategy and tactical project execution. Another key issue is the economic value of strategy in implementation of projects. Project's potential benefits should be illustrated financially, preferably in economic (or financial) terms (Grundy 1998). Knutson (2001) points out that the portfolio management process provides a means of consistently and objectively evaluating each proposed project that is vying for a limited pool of resources, thereby aiding the process of making the most effective strategic use of the resources. In addition, Avisona et al (2004) proposed that a project prioritisation committee should ensure only those projects aligned to the organisational goals are allocated resources. The intention is for this committee to drive the planning process and ensure business leadership and accountability across the company, on all projects. Each project is assessed on its potential to achieve a specific company goal and a specific process is followed to achieve this end. Several inter-linking management practices are identified as instrumental to the process of alignment, these being the process of setting strategy and prioritizing projects.

Portfolio management is used primarily to select, rather than manage, programs and projects. Similarly, Datz (2003) argued that portfolio management is one of the core strategic criteria and its beauty is that, ultimately, the prioritization process allows funding for the projects that most closely align with organisation's strategic objectives. Corporate and business units assembled a strategic portfolio of programs and projects, or measured the strategic contribution of a program or project, using a number of strategic and project management

processes, tools and techniques. ‘Governance' adopted or rejected projects based on this information (Morris 2005). The organisational strategy, goals and objectives are developed from vision and mission through the strategic planning process and are then passed on to portfolio management. The execution of strategy requires tactical implementation of strategic management processes, systems and tools, for the development of high level planning and management of operations, portfolio and project related activities. This results in the effective management of on-going functional organisational operations and the authorized programs and projects. The latter are linked and influence each other. Subsequently, there is an influence from the operational processes on portfolio management as well. From another approach, Merwe (2002) illustrated four levels of involvement in performing the work of the organisation – decision (creating the vision), steering (setting the objectives), anchoring (implementing them) and operational (those who perform the related job). On the other hand, Rhodes OU T833 (1999) pointed out that great attention must be payed to the implications against organisation context that comes from the chosen portfolio. Englund (1999) suggested guaranteeing the portfolio of chosen projects is utilizing a common resource pool and has cooperation across the organisation. The management of the resource pool must be based on rewarding interdepartmental cooperation. Unallocated capacity in a resource pool, for emergencies and for creativity, should also be allowed for.

Portfolio management combines the strategic focus of the selected projects to deliver effectively, and on time, and to meet the portfolio strategy in relation to business strategy. This is achieved by monitor measurements, value indicators, communication and controls (PMI 2006). In addition, it would be helpful if the projects' typology is communicated and accepted by management as well as team members. Once the framework has been established, management could state its priorities and policies related to project types. In this way, specific project selection becomes easier, and it may reduce some of the conflict and arguments regarding resources and priorities. Also, when a new assignment is taken on, it is easier to assess its importance in comparison to existing and running projects (Fricke et al 2000). Englund (1999) suggested there be a mix of projects, that are consistent with business strategy, such as 50% percent platform projects, 20% percent derivative projects, 10% percent breakthrough projects, and 10 percent partnerships. The selection of projects must be based on comparative priority ranking of contribution to strategy and should reduce the total number of projects to minimize possible disruption. Longman (2004) states that an effective portfolio management should identify which operational goals make a difference in the business strategy and install methods for keeping these visible to all. From the beginning, senior management should analyze their organisation's long and short-term strategic plans and budgets, and define how a project fits into, or supports, these. This includes, for example,

targets related to revenue, profit, cost, cash flow, return, brand equity, customer satisfaction and retention, time to market, innovation, efficiency, output and quality. There is a need for the development of consistent criteria that are used to prioritize projects (Englund et al 1999). Englund (1999) suggests that the Plan of Record (POR) is both a process and a tool used by some organisations (e.g. Hewlett-Packard) to keep track of the total list of projects. It lists all projects under way, or under consideration, by the entity. If a project is funded and has resources assigned, it has achieved in-plan status. Projects below the cut-off lines of available resources, or that have not yet achieved priority status, are on the out plan. Project selection is described as a process where an optimum combination of candidate is selected for implementation, based on the parameters that are considered as the most critical. Projects are selected and assigned with appropriate targets, resources, and schedules during the portfolio and program-planning phase. Due to the uncertainties associated with project costs, schedules, and performances in the early phase of projects, selecting a particular project out of a potential pool of projects is a difficult task. For the same reason, choosing a portfolio of projects is an even more difficult task.

Jung's et al (2007) study illustrated that projects can be categorized depending upon process indicators, such as system capability and controllability, which in turn enables managers to prioritize projects. Thus, this type of prioritising process requires different improvement strategies. Robertson et al (2006) indicated that a particular project could be defined and categorized by using two process performance indicators - capability and controllability. Yet it is difficult to achieve a strategic approach for overall improvement without considering the overall distribution of the project characteristics. Appropriate project categorization facilitates achievement of multiple organisational goals, such as long term, short term, internal, external, tactical and strategic and prevents projects from competing with each other on inappropriate categories. The key decision-makers must evaluate new project proposals with consideration of various parameters for categorization. Similarly, Nutt's (1990) study found that both adoption and risk were influenced by decision style. The decisions of top executives were more style dependent than those of middle managers. Several differences were found in decision-making based on the extended Jungian decision style framework used. Warnock (2000) outlined three criteria that take precedence over simplicity in how a business makes a decision – the solution must be implementable, must not produce unacceptable adverse consequences, and must allow for flexibility. From another point of view, the selection criteria could be the following - consistency with an organisational goal and mission, contribution to strategic objectives, a mix of long-term and short-term projects, the impact of cash flows over time and the impact of resource loading over time. Project categorization and selection are a critical step in project management, as the decisions made in this phase impact

all subsequent project activities. Six Sigma methodology can help companies to better categorise potential projects in a systematic way. The well-known approach to Six Sigma projects is the define-measure-analyse-improve-control, (DMAIC) methodology.

Artto et al (2002) defines a portfolio as a set of projects that are managed, in a coordinated way, to deliver benefits, which would not be possible if the projects were managed independently. Englund et al (1999) suggests that the use of a portfolio to organize the projects into categories will make it easier later on to facilitate the decision-making process. Looking at all projects, and a possible project, on a continuum allows checking for completeness, gaps, opportunities, and compliance with strategy. The role of each criterion is to help compare projects, not specify them. Select criteria that can measurably compare how projects support the organisational strategy and the weighting of criteria is the technique that can optimize and determine the best of the best. The assumption of Martinsuo (2006) was that management, at portfolio level, becomes more relevant as the size of a company increases. Information availability had the highest, significant effect on multi-project management efficiency, whereas goal setting and systematic decision-making had been lower. This assumption is demonstrating that higher degrees of goal setting, information availability and systematic decision-making are reflected in the higher levels of portfolio management efficiency. Portfolio management interconnects the strategic goals with the allocation of resources. The number of employees appeared as an influential control variable in the study by Martinsuo (2006). In other words, the larger the firm, the poorer portfolio management efficiency. This negative relationship was strengthened by the three single-project management practices. The strategic intent prioritizes a set of portfolio components, as a subset, and defines the financial and other resources that are required. Strategic intent adds or removes components, and aligns them with organisational strategy, by assessing their viability, interconnects them with other portfolios, prioritizes and balances them (PMI 2006). Clear objectives mean that the right projects are selected and clear processes and roles ensure that projects are done right (Palmer 2002). The reaching of scope goals could be considered the most important item for portfolio management efficiency since scope, as the product, is the practical way to implement strategy (Martinsuo 2006).

According to PMI (2006), the governance link has a sequential flow from executive management area to portfolio management, project and program management and, finally, to operations management level. The feedback of performance is linked as input for portfolio balancing and governance processes. Various portfolio events also have communication links inside and outside of an organisation. The day-to-day organisational activities are described as “operations”. Portfolio management interacts with, and impacts, them in budget and

allocation of resources. Organisational governance occurs at a different decision-making level of an organisation in support of specific goals and objective produced in the strategic planning process. In managing operations, or projects process, all governance levels are linked together to ensure that each action is ultimately aligned with organisational strategy. Martinsuo (2006) found that information availability for decision makers appeared to be the most significant project-level factor contributing to portfolio management efficiency, both directly and indirectly. Goal setting is indirectly related to portfolio management efficiency, through perceived project management efficiency and also through reaching project goals. Portfolio management is divided into aligning, monitoring and controlling process groups. The aligned process's key activities are identification, categorization, evaluation, selection, prioritization balance and authorization of components, to then be passed onto program management. It is linked with monitoring and controlling, which provides feedback to the strategic planning process for the portfolio status. The Portfolio management process cycle is an ongoing business process with certain activities and links with other areas and processes. Some of the activities are performed with a certain frequency. Others, like monitoring, are performed continuously, providing feedback through their links to strategy and other project management processes. Avisona et al (2004) identified three perspectives regarding the project mapping processes. The two dominant ones are technology leverage and organisational requirements. A less dominant perspective is technology implementation. The most dominant alignment perspective is the technology leverage perspective, otherwise known as technology potential. From a strategic, structural and operational perspective, the two states indicate good or poor knowledge and understanding of the organisation interrelationships and interdependencies

Crawford et al (2006) showed that the grouping of projects is an essential step in portfolio management. Conversely, with the purpose of categorization for portfolio management being different from the purpose for categorization in project management, the existing systems are rendered inappropriate for portfolio management. The model developed by Crawford et al (2004) is based on thirty-two different purposes for classification and thirty-seven attributes to classify projects. While being more advanced in terms of applicability for programs and portfolio management, the system does not outline the relationship between projects groups/classifications and the associated portfolio management practices, roles, and responsibilities. Portfolios are interconnected by continuous communication with projects, through programs or directly, ahead of sharing and allocation of goals and resources and in order to achieve their strategic intent. Also, there is a link with relevant strategic stakeholders from all organisational levels. Portfolio is also allied with the strategic planning processes, regarding strategic changes, to ensure that the components, which are no longer related to

current goals, are discontinued and that feedback is received on the performance status of active components. The set of projects must be linked to organisational strategy. Projects without strategic emphasis often end in failure (Englund et al 1999). Dinsmore et al (2006) gathered valuable data that found that even among the more mature industries, such as petrochemicals and defence, multi-project or project portfolio management, there is an area of relative weakness. Portfolio management has also tied with executive managers, sponsors and stakeholders, program management, project management, PMO, functional operations, financial management, customers, vendors and business partners and compliance management. A link with program and project management processes is established with (KPIs) Key Performance Indicators, with metrics used to determine whether the portfolio components are progressing as expected and the results are in line with organisational strategic goals. Most studies couple the business strategy with project management through a dynamic decision and project selection process called pipeline management or, in other words, Projects Portfolio Management (PPL). The variable link is what drives this process to select, prioritize and balance projects.

Englund et al (1999) argues that top performing companies do not use financial methods for portfolio planning. Rather, they use strategic portfolio management methods where strategy decides project selection. Portfolio management efficiency concerns organisational members' estimate of the degree to which the projects together, as a portfolio, succeed in fulfilling the portfolio objectives. The specific objectives of the portfolio management frameworks are to maximize the value of the portfolios as a whole, balance the portfolios and the opportunities and risks in each and to link and integrate them into the overall business strategy of the organisation to achieve growth and boost profitability. As a result, portfolio management includes ongoing decision-making, prioritization, review and realignment of relationships and projects (Tikkanenet al 2006). Some empirical studies have raised benefits, to customers, other stakeholders, performing organisations, and the future as important success criteria in projects, apart from the reaching of dominantly used scope–cost–time goals (Martinsuo 2006). PMI (2004) redefines portfolio and program management, and includes them in project management context. The hierarchy that PMI (2004) suggests is a strategic plan, portfolio, program, project and subproject. Program is consisting of several associated projects contributing to the achievement of a strategic plan.

From a wider view, a project portfolio is a collection of projects to be managed concurrently under a single management umbrella where each project may be related to, or independent of, the others. Strategy must be set at the corporate level, and then be filtered down to the project level, and must pre-eminently select or prioritize the best projects or programs to proceed

with. Project management is about choosing the right project and doing it right. Subsequently, the importance of aligning resource demand with resource availability to achieve a set of strategic goals is emphasized. Linking company strategy to portfolio development is critical, particularly when company strategy involves both a high degree of innovation and a high rate of growth. In fact, advances in portfolio selection and management practice have been notably strong in new product development. It requires strong management using formal portfolio management methods to manage their portfolio strategy within the context of the enterprise business strategy (Morris 2005).

Artto (2005) outlined a number of different managerial practices for the formation of strategic business management in multiple project environments. Similarly, Shenhar et al. (2001), suggests project classification by using different management approaches, as there are different types of projects. From the above arguments, it is assumed that there is a need for flexibility in strategy formation, according to project types in multiple project environments. Once a portfolio component is authorized, it is passed on and becomes the responsibility of program management. The links between portfolio, program and project management are defined as the performance feedback from them to the portfolio. This is to determine a criterion for the actions to be applied against portfolio components, such as “go / no go” and termination Portfolio managers should realize and understand strategy and the total management status of portfolio components end-to-end and then apply continuous improvements (PMI 2006). Tikkanenet al (2006) identified that the management of the portfolios, and interrelationships between them, constitute the foremost conceptual and managerial challenge for managers. In essence, managers need to understand the significance of portfolios and their interrelationships. They also need to manage them systematically, as a coherent strategy that is in line with the higher-level corporate strategy.

Thomson (1998) found, in a survey during 1970’s, that 45% of the fortune five hundred companies were using some form of portfolio planning. A similar research, in the 1970’s, showed the difficulties of managing diversified businesses because of different strategic characteristics, reinforced by common portfolio management frameworks. Miller (2002) conducted a study involving 500 companies as well as the federal government of the United States of America. He found a little rigor is included in the prioritization and the overall ranking is purely subjective. In addition, important criteria that may directly impact a project's success are not taken into consideration. In most cases, corporate strategic factors are rarely considered or are deemed irrelevant to the IT Project selection process. Longman et al (2004) makes the interesting point that there are some projects that are initiated outside the normal context and justified by fuzzy or mysterious criteria. In this case, a person will tend to be

informal, random, get behind-the-scenes, and will employ political methods that undermine the project management context and the organisational goals. He suggested the Analytic Hierarchy Process (AHP) methodology. This is where a portfolio controls the measurements of organisational ability, to meet Project technical requirements, and technical core competency in order to perform the project. The Analytic Hierarchy Process (AHP) methodology also has the ability to provide cost competitive solution, to integrate with existing technology, to successfully deliver the project, to complete the project on schedule, to complete the project within budget and to deliver functional quality solution. Also suggested is the establishment of standards to measure Project alignment with a Model measuring customer commitment to the IT Project, in terms of needing corporate sponsorship, on customer priority. Another approach is that not all strategy implementations are downward from the corporate level, from portfolios to programs and projects. Just as in strategic planning, there is upward flow from SBUs so, in implementation, there is management information and action bearing-up from programs and projects onto portfolio, business unit and corporate strategy (Morris 2005). Risk and outsourcing have a particularly strong impact on portfolio selection and management. Risk evaluation in portfolio selection is required and risk assessment and quantification must be uniformly applied across all projects and teams. (Morris 2005). Martinsuo's (2006) study results support the idea that more attention should be directed towards the wider business aspects of projects, in terms of broader success criteria and a more strategic approach to studying projects in their business context. For managers, results mean that project goal setting should clearly be expanded towards wider business goals if portfolio-level results are expected. Survey results also showed that the efficiency of project management was the strongest factor contributing to portfolio management efficiency, and it has a mediating role between single-project factors and portfolio management efficiency.

Miller (2002) implies that a Project Selection Model is required to result in more specific criteria, but according to importance of each selection criterion. Shenar (2004) proposed a strategic portfolio classification framework, which is based on the need to select projects due to their strategic impact and to form a policy for project selection. Within the model framework, a tops-down approach is recommended, starting with the major and most significant criteria, and then working down through the sub-criteria. An HP Executive Vice President emphasized the need to focus on doing fewer projects, especially those that are large and complex, and to manage cross-organisational complex programs, if there are not so many. If there are a lot of them with such a culture, it just won't work. HP Project Management Initiative systematically reduced one hundred and twenty projects down to thirty. It appears counter-intuitive, but by prioritizing and more carefully selecting projects,

organisations actually get more projects completed (Englund et al 1999). Miller (2002) concluded that by formulating a direct relationship between the implemented projects with the strategic objectives of an organisation, it would be possible to identify, justify, and invest in only those projects that have high success potential and can impact the bottom line. This approach facilitates faster, better, more cost-competitive decisions by implementing a systematic, rational, proven approach. By considering both strategic and tactical criteria within an IT project selection process, it will develop a logical, well-justified business case for projects investment decisions.

Jamieson and Morris (2004), however, identified strategic planning, portfolio management, and an emergent approach as important steps in the alignment process. Englund et al (1999) raised the need for a complete model for selecting projects that supports an emphasis on strategy. The importance of project portfolio management is now recognized by all organisations. The program and project teams are developing strategies that align with the strategic business units (SBUs) and corporate strategy that contains the objectives, goals, and strategies. These included strategy plans, business plans, deployment plans and project plans, the hierarchy of which, in most cases, was similar to Archibald's hierarchy of objectives, strategies and projects (Morris 2005). Hierarchy is usually important in any discussion about implementing strategy. A hierarchy of objectives and strategies can generally be formed by using a strategy planning process; this can be a very effective means of structuring and managing strategy, and communicating it to the organisation. Thereby, hierarchy is developed at the policy, strategic, operational and project levels and cascaded down, ensuring alignment and continuity of strategy. (Morris 2005). Similarly, Kerzner (2000) shows a hierarchy where strategic plans are cascaded from corporate strategy to SBUs and from SBUs to supporting plans.

Martinsuo (2006) found that there is a positive correlation between project management variables, project level results, and portfolio management efficiency. There are a few correlations between control variables and other variables. For example, the larger the company is, the more likely is organisation and systems development as a chosen type of project, the larger is the proportion of projects that reach their goals, and the weaker is project and portfolio-level efficiency. Product development is positively correlated with the number of projects as well as project management efficiency, information availability and systematic decision-making. Both portfolio and project management are acting as a process system and have required inputs, tools to process the information and outputs to forward to other processes.

A portfolio management process is the offspring of the business strategy, transforming plans to action. Target time, available resources, ownership and sponsors responsibility, types and quantity of projects are key factors for the formulation of a successful portfolio system. The latter are also dependant on company culture, previous practices knowledge, present requirements, market demands, and stakeholders' management. The key to the success of portfolio management is to have clearly defined measures against which each project must be evaluated and given a value (Calahan 2004). The modulation of criterion is a direct link, and designated variables, between portfolio management and business strategy, which defines the way and the recommended balance on selecting projects, according to business strategic objectives.

The central properties of portfolios and their interrelationships can be conceptualized as the sum of tangible, objectively existing structures and processes, and intangible, cognitive meaning structures at the level of a business organisation. Issues related to the tangible dimension are essentially codified (e.g. materially existent, written, built, coded or scripted) and are, thus, visible and accessible to the members of the organisation or the network. On the other hand, the cognitive dimension refers to the meanings and meaning structures ("mental models"), which the actors maintain in regards to the four portfolios. The cognitive aspects also centrally relate to the way in which the actors perceive the functioning of the project-based company's strategy (Tikkanenet al 2006).

A strong portfolio management program maximizes the value of investments while minimizing the risk. It improves communication and alignment between projects and business by taking responsibility for projects and allowing planners to schedule resources more efficiently by reducing the number of redundant projects (Datz 2003). A questionnaire survey by Martinsuo et al (2006), involving two hundred and seventy nine organisations, verified the hypothesized role of information availability, goal setting and systematic decision-making in achieving portfolio management efficiency. The results revealed a direct, and mediating, role of project management efficiency, but rejected the hypothesized link between reaching project goals and portfolio management efficiency. The results imply that understanding of portfolio level issues needs to be considered as part of a project managers' capabilities and is not only a top management concern. According to Green's (1995) study, the influences of the top management of an organisation were based in defining business objectives, setting implementation objectives, project initialization, initial project priority, initial resource commitments, changes in resource commitments, changes in project priority and exposure of results to other organisation's sections.

4.4 Program management

Program and portfolio management is charting and authorizing a project and linking it to the ongoing work of the organisation (PMI 2004). PMI (2006) describes program management, as follows - “Program is a group of related projects managed in a coordinated way to obtain benefits and control not available form managing them individually”. In other words, program management enables appropriate planning, scheduling, executing, monitoring and control of the selected projects via portfolio management. Thus the system of projects is, in itself, a project, with the smaller projects being the activities that contribute to the larger project (organisational) goal (Englund et al 1999). Programs emanate from business strategies and initiatives with an iterative hierarchy of programs, projects and business operations cascading down from them. Milosevic et al (2007) and Martinelli et al (2005) defined program management as follows - “Program management is the coordinated management of interdependent projects over a finite period of time to achieve a set of business goals”. The key concepts identified in the previous statement are coordinated management, interdependent projects, finite periods and business goals. It is a business model whereby companies provide the means to conceive, develop and bring to market new products or infrastructures in order to generate substantial profit. Thiry (2004) defined programs as a collection of business changing activities (projects and operational) purposefully grouped together to realize strategic and/or tactical benefits. Other authors define program management primarily as a collection of interrelated projects. Some emphasize the technology base, as in platform projects (Candle 2001). Those authors that come from an Information Technology viewpoint emphasize the importance of business benefits from well-established, multi-project management (OGC, 1999). Some other authors proposed Strategic, Multi-project, and Incremental methods of program management. PMI (2004) contrasts program management with project management. The former refers to centralized control and the coordination of related projects in order to achieve strategic objectives and benefits.

Programs, on the other hand, are a means of achieving the organisational goals and objectives of a strategic plan, and often include operational works outside the scope of projects. In addition, programs are linked with and apply several other broad management themes in order to ensure the success of a program. The management of multiple projects is intended to optimise and integrate costs, schedules and efforts. Projects can be interdependent or share a common attribute (PMI 2006). A program is an undertaking in which a group of projects are managed in order to achieve a holistic mission, and are organically combined. Multiple projects, in a strict sense, are treated separately from programs since their respective structures have weak relations with each other, or are independent. This multiplicity of

context refers to the integration of various factors, such as politics, economy, society, technology and ethics (PMCC 2001). A program often has to strive for the achievement of a number of sometimes-conflicting aims and has a broader corporate goal than projects, which aims to achieve single predetermined results.

Prioritization and alignment

Program management goals focus on improving efficiency and effectiveness through better prioritization, planning, and coordination in the management of projects as well as in the development of a business focus by defining the goals of individual projects and the entire program regarding the requirements, goals, driving forces, and culture of the wider organisation.

Both portfolio management and program management focus on prioritizing resources and optimizing the business benefits. A fundamental responsibility of project and program management is to manage the resources needed to define and deliver its programs and projects effectively (Morris 2005). Program management is more involved in the day-to-day management, unlike portfolio management, which is more periodic and strongly analytical. It is a powerful way of coordinating projects that have a shared business aim and is an important method of ensuring that the organisation gains the maximum benefit from integrating its project management activities. Thiry (2004) described the activities related to program execution as an assessment and management of environment and communication, as well as the identification of emerging challenges. This includes a focus on the interdependencies of projects, the program manager's level of intervention, in assessing major deliverables, and the output-input relationship of projects in the program, as well as audit and gateway control. Control activities, during execution, comprise the need for reviewing plans and changes, considering key performance indicators (against deliverables) and making decisions to continue, realign, or stop projects.

The Strategic nature of program management

According to Milosevic et al (2007), program management is strategic in nature as it provides a focal point of ownership and accountability of business results by aligning functional objectives to business objectives. Programs and program management are frequently used in large organisations to implement strategic initiatives. Several perspectives exist on the optimal ways to configure programs to achieve strategic objectives and deal with change (Thiry, 2000). Usually, projects involve deliberate, planned strategies. Emergent and unplanned strategies sometimes appeared in practice, too. Program management must then combine both deliberate strategies and emergent, unplanned strategies. It is performed

primarily in the sense of managing a group of high value projects that share a common aim and/or deliver regular benefits over a protracted period of time (Morris 2005).

The literature on program management can be classified into three categories - program management (as an entity for organisational structure), program management processes and life cycles, and competencies for program management (Blomquist et al 2006). It serves as an enabler for achieving business strategies as it provides a systematic approach to organize, plan, implement and complete complex product development endeavors within a company. The power of the program management model is the ability to link similarly aligned projects that are tied to the business strategy of a firm. A program is strategic in nature and has both a business and technical focus, and is typically managed in a cross-functional, matrix structure. Program management ensures that the program is closely aligned to, and directly supports, the achievement of a business' strategic objectives. It provides a focal point for ownership and accountability for successfully delivering the intended business results for the organisation and has both business and technical focus. It ensures the program is successful in both aspects. Each interdependent project within the program has a set of objectives. It ensures the project objectives contribute to the achievement of the business goals of the program (Martinelli et al 2005). Implementing strategy, through program management, involves continuous re-formulation and adjustment (Morris 2005).

Benefits

Benefits management is increasingly recognized as a key formal activity within program management and is clearly linked to value management. Both must be linked to strategy and programs to be most effective according to Thiry (2004). The Programme management categorisation of benefits and goals are - efficiency and effectiveness, improved co-ordination, improved dependency management, more effective resource utilisation, more effective knowledge transfer, greater senior management “visibility”, business focus goals, more coherent communication, improved project definition and better alignment with business drivers, goals and strategy (Lycett et al 2004). Luecke (2003) stated that, generally, programs fall into one of the following categories - structural change, cost cutting, process change, and cultural change. While there are many types of programs that promote change, two very different goals typically drive a change initiative - near-term economic improvement or an improvement in organisational capabilities. From another point of view, program management is focused in three key themes or success factors during its life cycle. Those factors are benefits, stakeholder management and program governance. Effective programme management is relationship-based. It should focus on creating a context that enables project managers to be successful while facilitating the stakeholder relationships that support this. In the context of a changing environment, it is of vital importance to ensure an adequate ongoing

connection between the projects, within the programme, and the wider organisation if projects are to remain aligned with the overall drivers and the strategic direction of the organisation. It is an equally important part of the programme management role to facilitate effective relationships between the individual project managers within the programme in order to ensure that they work together effectively and remain collectively focused on the achievement of an overall business benefit (Lycett et al 2004).

Programs and projects relationship

A project refers to the undertaking of value creation and is based on a specific mission, and is completed in a given or agreed timeframe and is under constraints, including resources and external circumstances. It has three basic attributes - they are the uniqueness of a project's mission, the temporary nature with the starting and closing times set and the uncertainty that affects a project, such as environmental changes and risks, and, on top of all that, value creating nature (PMCC 2001). Programs are often ongoing or long-term and are subjected to both uncertainty and ambiguity (Thiry, 2004). In general, the greatest difference between program and project management is that program management focuses on achieving business results to create a competitive advantage while project management focuses on planning and executing the work required to deliver the product (Martinelli et al 2005). Projects, on the other hand, concentrate on achieving one single, particular result within set time and cost constraints. There is interdependency between projects and other strategic programmes that become strategic project sets (Grundy 1998). Lycett et al (2004) stated that a programme lifecycle must provide a clear separation between the justification of individual projects within the programme and the justification of the programme, as a whole. Inputs of program management are aligned with common knowledge of an organisation. These inputs are assumptions, constraints and historical information. The communication process, of program management, has links to internal and external organisational structures. Without explaining the interaction between project management and business strategy, most studies link business strategy with project management through project selection and see it as part of the alignment process (Srivannaboon 2005). The United Kingdom's Office of Government Commerce (OGC) considers the alignment between strategy and projects to be one of the main benefits of program management (OGC 2007). Each strategic project can have a huge influence on the entire ecosystem within which a company operates. Thus, program management operates as a critical business function within an organisation, as it owns the achievement of a portfolio of the business objectives (Milosevic et al 2007).

Similarly, to the project management domain, program management is structured and mapped in process groups and knowledge areas with links and influences between them. Figure 4.4.1

indicates that the complementary nature of project and program management and the frame elements of project management support both project and program management.

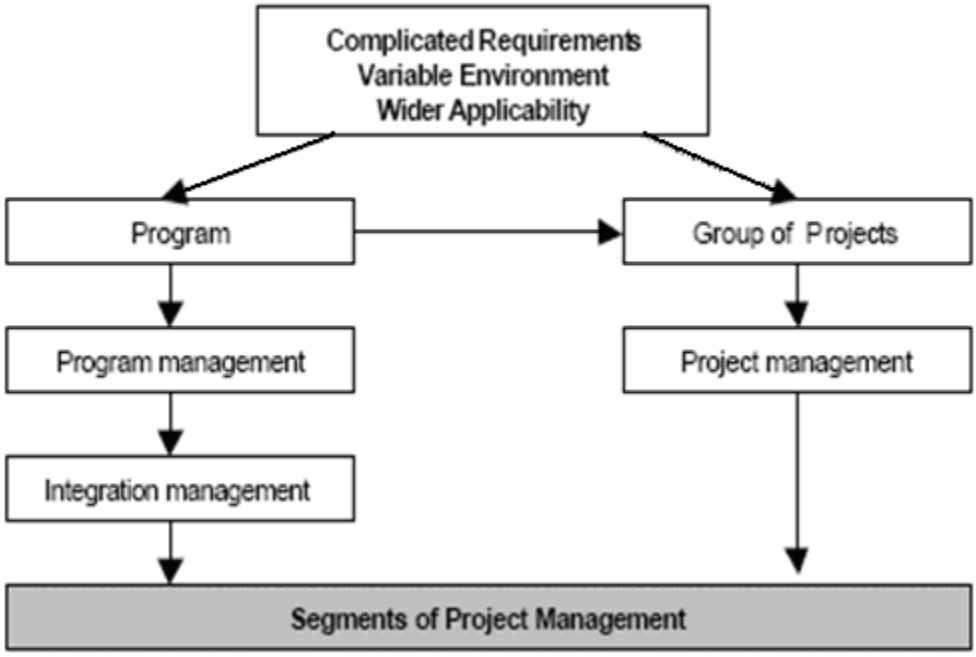

Figure 4.4.1 Relationship between Program and Project (Project Management Professionals Certification Center 2002)

The connection of portfolio with program management

Portfolio management, according to PMI (2006), is linked with program management with the following statement - Portfolio management focuses on assuring that programs and projects are viewed as a priority for resource allocation that is consistent with, and aligned to, organisational strategy, while program management focuses on achieving the benefits aligned with portfolio and, subsequently, strategic objectives. Program management's intent is to focus and link projects with interdependences, manage resource constraints, facilitate the mitigation of risks in a set of projects, manage business direction positively in related projects with other programs and operational work, and to bring about the escalation of issues in projects, such as quality, scope changes, communication problems and program interfaces and dependences (PMI 2006). According to PMI (2006), there are many interactions between portfolio and program management, generally in the planning, initiation and early stages of a program. These inputs are in the form of strategic goals, funding allocations, requirements, timelines and constraints. The previous forms are then translated into program scope, budget, deliverables and schedules. This link and direction is performed from the portfolio to the program domain according to the feedback of forms' performance and status of active programs and projects. The interactions, through this link, are related to initiation stages, life

cycle, and closure of a program. They are also related to status of the suggested changes from a portfolio domain. On the other side, the link between the program domain and the project management processes is shaped into an integrative nature of higher-level direction and management of interdependencies through all process groups. This is applied iteratively “top-down” and “bottom-up” to projects' knowledge areas. This cyclical interaction, between program and project levels of processes, is performed during all stages of a program’s life cycle - from a portfolio to program and then back to program and portfolio domain. The target of strategic management between portfolios, programs and projects is to align them with business goals and connect them with balanced investments and resource allocation. Finally, program management also interconnects with stakeholders' management processes.

Program management is improving the link between the strategic directions of an organisation and provides the required management activities to achieve the strategic objectives (Lycett et al 2004). It links interdependent projects by possessing a common set of objectives in order to achieve the program goals and strategy. In addition, program management aligns them with the overall portfolio management and coordination (Martinelli et al 2005). In much the same way, Pellegrinelli (1997) proposed a generic portfolio and goals oriented program management. He suggests that the requirement of a decision management should be taken into account with the appropriate strategic perspective. In major strategic programs, there are many interdependencies between project clusters and an appropriate level at which to appraise the project is required. In this situation, it is necessary to evaluate the effect as the business unit strategy itself (Grundy 1998).

The linking of program management to ongoing positions is more inclusive than project management and indicates a greater involvement with the general management of an organisation and other management disciplines. It has two major attributes - multi-project management and elements of ongoing operations, such as post-deployment management of the results produced by the projects. The successful execution of organisational processes directly impacts on the successful execution of program and project management processes. The portfolio management process connects organisational processes, outputs and informational requirements with those of the program and project management (PMI 2005). This requires the ability to simultaneously coordinate the strategic, tactical and technical aspects of consolidation, while maintaining the seamless operation of the company. Simply put, it is necessary for program management to provide a 360-degree view of an organisation's collective efforts (Gaddie 2003).

Interdependency

Interdependent projects are those that have a dependence upon the delivery of an output from other projects. Lycett et al (2004) stated that key relationships of program management have been argued to be 1) between programme management and project management, 2) individual project managers within a programme and 3) individual projects and the goals and drivers of the wider business. Based on a case study involving a large global consultancy, Pellegrinelli et al (2005) identified a framework of program management competences. These consist of four levels of competencies with seventeen attributes that are arranged into three groups of relationships, and then managed. These relationships include self and the work, self and others, and self and program environment. The four levels represent an increasingly widening view from focusing only on details to appreciation of contextual and future consequences. Firstly, lower levels require the understanding of the details and the relationships between activities. The next level works at a summary level without getting overwhelmed by the details. The third level involves the understanding of the entire program plus the activities that include gaining an understanding of the issues and outcomes for key stakeholders. The last level holds an overall view of the program and selected details; it appreciates the impact of program decisions and actions outside the program as well as potential future consequences.

Weaknesses and confusion

Milosevic et al (2007) states that today there still exists confusion between program management and other disciplines and processes such as project management and portfolio management in many companies, classrooms and works of literature. The factors of this confusion are that the term is misused in the definition of process improvement and continues repetitive work activities and that most of the literature available describes it in broad and ambiguous terms. Foundations have been laid for a new discipline, commonly referred to as programme management, which is defined as the integration and management of a group of related projects with the aim of achieving benefits that would not be realised if they were managed independently. Whilst connected, this is distinct from portfolio management (Lycett et al 2004).

Lycett et al (2004) noted that the weaknesses of standard programme management techniques can be traced back to two erroneous assumptions, namely that project management and programme management are essentially equivalent; and that a single standard approach to programme management is applicable in all circumstances. Specific issues that arise, as a result of these flawed assumptions, include a dysfunctional and bureaucratic mode of programme management due to an excessive control focus, an ineffective alignment between programmes and an evolving business context and finally, missed opportunities in facilitating genuinely effective co-operation and shared learning between project managers. Morris

(2005) suggested focus and better understanding of the process as projects and programs are important ways for strategy to be implemented within an enterprise.

Partington (2004) argued that the provision of research findings, and high-level access by several large organisations, indicates a clear demand for a fresh understanding of the little-researched but important question of how program management competence differs from project management competence. The traditional approaches towards understanding project and program management competence, by professional associations and other researchers, has fallen short.

4.5 Project Management

Projects and project management have deep roots in the past. People undertaking projects 2000 years ago may not have had the technology we have today, but they often had political and economic stability and a society that took a long-range view of life and the world. Most authors today state that the organisational project management process had its origin in 1958 with the development of PERT methodology (Kerzner 1989). Harpham (2002) counters that it first used by the military as a management discipline during the Second World War; it progressed into the civil sector during the late 50's and early 60's of the last century. Gaddis (1959) referred to the subject of "projectitis" as it sees all things as though a particular project were the centre of the corporate universe, the alpha and the omega of the development effort.

The United Kingdom's Association for Project Management developed its Body of Knowledge, which listed around forty competencies that is required by a good project manager. Since then, there has been a dramatic rise in the use of project management as organisations shift to provide customer driven results and systems solutions (Englund et al 1999). According to PMI (2004), the project management system is the set of tools, techniques, methodologies, resources and procedures used to manage the project and is adapted or adjusted into organisational influences. Projects, distinct from programs, have a unique objective and follow a single development life cycle. British Standard (6079) on project management (1996), however, defines a project as a unique set of coordinated activities with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters. Project management is the planning, monitoring and control of all aspects of a project, and the motivation of all those involved in it, to achieve the project objectives on time and to specified cost, quality and performance. These definition statements reveal two major influential factors - individual and group motivation. The past several decades have been marked by a rapid growth in the use of project management (PM) as a means by which organisations achieve their objectives. Project management provides an organisation with powerful tools that improve its ability to plan, implement and control its activities, as well as the ways to utilize its people and resources (Metaxiotiset al 2005).

Traditional project management focuses on deliverables (or 'outputs'), on scheduling and coordinating tasks, and on mobilizing resources. Project management in the arena of strategy implementation, therefore, needs to embrace a number of more complex, interdependent and fluid factors in order to be genuinely effective (Grundy 1998).

Many parameters define the qualitative progress of the project management processes, such as knowledge, skills, tools and techniques. It depends on the project which type of processes

should be adopted (PMI 2004). Dinsmore et al (2006) observed that the project management profession may have obscured the centrality of these factors by adopting special jargon ('project scope', 'schedule float', 'work breakdown structure') and a specialized literature (focused on 'bodies of knowledge' and the like) and forming professional associations, with all the rites of an ancient religion into which people have to be initiated.

Morris (2004) characterizes project management as a key business process. The essence of project management is to support the execution of an organisation's competitive strategy to deliver a desired outcome. PMI (2004) mention that, depending on how large a project is it can be divided into subprojects, which then be divided into even smaller subprojects, if required, for better control and faster implementation. On the other hand, Maylor (2001) found that piecemeal systems fail to tie projects to the overall strategies of the firm. Piecemeal project priority systems fail to prioritize project selection to resources and those projects that contribute most to the strategic plan. Piecemeal tools and techniques fail to be integrated throughout the project life cycle. Piecemeal approaches fail to balance the application of project planning and control methods, with appropriate adjustments in the organisation's culture, to support project endeavors. PMI PMBOK (2004) states that projects are temporary, in contrast to business operations, and have three types of unique deliverables - products, services and results. They are sometimes utilized as a means of achieving an organisation's strategic plan, such as a market demand, organisational need, customer request, technological advance, legal requirements or more.

Shenhar (1999) suggests the SPL as a strategic project leadership framework, which consists of project management elements with which business strategy should be linked and aligned. These elements are project strategy, spirit, organisation, process and tools.

The United Kingdom's Association for Project Management BOK gives fuller recognition to the business context within which the project resides, as well as recognizing portfolio and program management, and requirements management. The business and operating requirements of a project frequently affect project strategy significantly and, for this reason, the APM BOK identifies requirements as a key project management process.

Configuration Management (CM) is also suggested, by PMI (2002), as a management process for establishing and maintaining consistency of a project's performance, functional, and physical attributes with its requirements, design, development, and operational information throughout project's life. A latest suggestion from PMI (2004), on this interaction and

influence phenomenon, is to adopt the American Society of Quality's (ASQ) concept "plan-do-check-act".

Project types

Programs are classified into four main types by their business contribution and lists - strategic, key operational, high potential and support. From another point of view, programs can also be classified into the following categories - major organic, business development, strategic and financial planning, acquisitions, business process re-engineering, structure and culture change, quality management, alliance and joint venture projects, restructuring projects, information systems, operational projects, and continuous improvement projects PMI (2004). The categorization of projects, according to their complexity, is based on the variety or diversity of the tasks and the interdependency between tasks or teams (Hölttä-Otto et al 2006).

Longman (2004), working with a range of organisations in the public and private sectors, discovered seven essential conditions for project success. These are 1) compelling business case and people motivation, clear communication of vision and value, benefits for the organisation, 2) make project management practices applicable, relevant and realistic in an earlier stage of the project, 3) simplify project management training materials and train project members and get agreement and commitment to the processes and procedures, 4) build bridges and on-the-job applications by motivating people with skills and supporting them to reflect with practical results, 5) simplify systems and procedures of project management by communicating the rational, behind project steps and processes, by explaining the "why", 6) motivate by rewards for the project management team with positive reinforcement, and 7) make every project a platform for growth in learning by doing lessons learned. Project diagnosis is a crucial phase in Strategic Project Management. The project's key objectives for this diagnosis are strategic, operational, organisational and financial (Grundy 2001). Project management processes are usually presented as discrete components with well-defined interfaces while, in practice, they overlap and interact in complex ways. The documentation of the project management process is based in three major documents, which are project charter, scope and plan (PMI 2004). Whereas complex projects demand more participative management, more involvement of prospective customers and external suppliers, simple projects rely on autocratic styles and less customer involvement (Chebat 1999). A contingency between project type and management style has been outlined in various studies. In turn, different project types are correlated with different program and portfolio management roles and responsibilities (Blomquist et al 2006). Cicmil (1997) identifies four distinct categories of projects - engineering, new product development, systems

development and organisational change projects. Youker (1999) identified four basic routes for the classification of projects. These are 1) geographical location, 2) industrial sector (Standard Industrial Classification System), 3) stage of the project life cycle and 4) product of the project. The most important and useful breakdown is by type of product or deliverable or by performing a maintenance turnaround (Youker 1999). Projects can be classified, according to the product they produce, into nine basic types, as they are illustrated in table 4.5.1.

	Project Types
1	Administrative
2	Construction
3	Computer Software Development
4	Design of Plans
5	Equipment or System Installation
6	Event or Relocation
7	Maintenance of Process Industries
8	New Product Development
9	Research

Table 4.5.1 Project types according to product produced (Youker 1999).

Maylor (2001) declared that the old project management models are highly deterministic and based on techniques notably PERT. Whilst these models have been refined significantly over the years, they are not considered useful by a large number of world-class organisations.

Amongst the popular models is Shenhar's (2005) two-dimensional matrix of project scope and technological uncertainty, which identifies the need for different leadership approaches in different projects. In effect, these projects need to be guided much more sensitively towards their target, relative to the more traditional, 'fixed' notion of a project (Grundy 1998). There is a match between the strategy to reduce product development cycle time and the very complexity of the project (Chebat 1999). Crawford et al (2006) identified the requirement for different leadership styles, depending on the extent that goals in a project and the methods for achievement of these goals are understood, in a project. This two-dimensional model identifies four project types, depending on the low or high clarity of objectives and methods. Each of these project types requires a different management approach to achieve the project's objectives. There are variations in project life cycle form, corresponding with business types,

but is commonly a sequential process consisting of variables, such as what, when, who, and how to control costs, quality and time (PMI 2004).

Strategic and non-strategic projects

Almost all organisations have discovered non-strategic projects, such as compulsory projects and maintenance. Generally, implementation refers to the actions that are undertaken to attain the corporate objectives. These actions are projects that are aligned with the corporate strategy, resulting in implementing the right project, in other words, being effective. The definition is inclusive as it covers all projects that are realized in the organisation, strategic and non-strategic (Aubry et al 2007). There are strategic projects, tactical projects and maintenance projects. There are also those projects called bet-the-business projects, which have direct meaning within strategic business decisions. In this respect, there are many different variations within these designations, but for the most part, this appears to be a meaningful breakdown for most organisations. The projects themselves function as management vehicles to guide how to move the organisation forward.

Strategic projects are those delivering business strategy and using project management techniques in order to implement and deliver organisational breakthroughs. Business projects often materialize as a result of formal or informal strategy development. Besides projects, which are of a corporate development and external nature, there are frequently internal projects, which are aimed at reaping major organisational change. Each project of that kind then needs to be linked back up to the business strategy. Non-strategic projects characterize those that have no direct link to delivering business strategy. This link can be achieved through such projects by perceiving them as sub-projects of strategic projects. Such types of projects are establishing an indirect link with business strategy. All projects, which are planned in an organisational context, are coming from the portfolio and program management areas and have a direct or indirect link with organisational strategy intents. Operational Projects are those projects associated with the operation of the enterprise and typically involve operational goals, scarce resources and multidisciplinary teams. A strategic project involves a whole lot more arm waving, where simply floating the concept says much about your organisation and aspirations.

In the research by Bednall et al (2005), it was found that tactical projects are more likely to be misused than those with a strategic orientation. "Strategic" and "Tactical" projects are tossed around a lot and it is found that they cause confusion when people use them differently in the

same meaning. Strategic projects address long-term objectives and tactical projects address short-term objectives so that a solution is in place while the long-term solution is being developed. For example, a tactical project could be implemented within months, while developing a strategic project would cost considerably more and might take years to implement and not be able to leverage any of the tactical projects in the strategic project. Another approach is that companies might consider tactical projects to be the short-term projects that are performed in order to accomplish long-term objectives.

Tactical projects are smaller scale projects and may be managed as a series of pre-defined activities with defined outputs and milestones. Examples of tactical projects would be the development and execution of installations of IT infrastructure in one department or the housekeeping, control, and production lines. The tactical projects could be performed reasonably well, likely because they are focused on narrowly defined problems.

Highly strategic and mid-level strategic, nature projects outperformed tactical projects for business value and meeting business case success measures, but more often lagged in more narrowly defined success measures, such as on schedule deployment and achieving optimal user functionality. As a result, the aggregate success measures were compromised for projects that are strategic in nature.

The following paragraphs are an explanatory approach according to the basic structure of PMI 2004, the Project Management Body of Knowledge (PMBOK). An analysis of project life cycles, and relevant areas, is performed in relation to their relationships and the links between them, with other operational functions and according to their influencing factors.

Project initiation

The initiation process of a project should involve all influencing factors, variables and project parameters (PMI 2004). The common question here is how are project initiatives linked to the broader strategy for improving such processes? (Rhodes OU T833 1999). The project's definition both affect and is affected by changes in external factors, such as politics, community views, and economic and geophysical conditions, the availability of financing, and the project duration. As a result, this interaction must be managed actively. The project's definition, as interaction with these external, financial, and other matters and as implementation, are harder to manage and possibly damagingly prejudiced if the attitudes of the parties essential to its success are not positive and supportive (Dinsmore et al 2006). In addition, project's specifications are influencing project's deliverables quality as well. Project size, complexity, risk levels and cash flow constraints are preconditioning factors for a project. A feasibility study is a key factor for the next step of a project.

Project planning

The activity of project planning involves scheduling of activities based on time, cost, quality, resources management, procurement, project scope and risk according to dependencies, organisational constraints and communication. The level of flexibility is an important variable during the process of project planning. Powell et al (2006) argued that the decision perspective is a synthesis of four common perspectives - marketing, organisations, engineering design, and operations management. From their research results, decisions associated with life-cycle planning should also begin during concept definition, evaluation, and validation, but no later than requirements definition, design definition, test definition, and validation definition. Assumptions, as part of the progressive elaboration of a project, are factors that influence project-planning processes emanating from project teams. They have a risk level, which requires further analysis to identify all those assumptions, inaccuracies, inconsistencies and incompleteness affecting the project. Tinnirello (2001) also suggested a careful development of a comprehensive project plan that incorporates sufficient time and flexibility to anticipate and deal with unforeseen difficulties as they arise. A project management plan has project strategy elements, which are project's objectives, schedule, budget, resource plan, risk management plan and a complete set of projects briefs.

Project execution

Executing processes interacts with feedback in the planning process. It is a results oriented trigger, for re-planning, based on quality check results, feedback for results characteristics, cost, time, and resources adjustment requirements. All those are in relation to the parameter of possible emergent strategy mediation for change. The flexibility and tolerance levels are also important regulation variables in an execution process. Flexibility, as discussed by Olsson (2005), is not seen as an alternative to strategic management, but as a means to help realizing a strategy, as successful projects, are characterized by a distinct strategy in combination with sufficient tactical flexibility. In many of the projects implemented to date, once determined, they were often executed inflexibly, in regard to changes in circumstances, with an ambiguous strategic intent making projects useless. In addition, many enterprises take a "hands-off" approach when projects are completed, and have no structure to pursue coordinated life cycle utilization for the deeper satisfaction of stakeholders (PMCC 2001). The ‘‘room for maneuvering" is made up by future, yet undetermined, internal decisions and may be seen as a measurement of the internal uncertainty of the project.

Monitoring and controlling

Monitoring and controlling is a continuous process acting as a regulator of activities by identifying the problems to be fixed with corrective actions and by influencing other factors, according to approved-only changes implementation. It focuses on the quality status variables of project process activities and their results. This process is monitoring and controlling the following as sub-processes project work, schedule, costs, quality, risk status, team and stakeholders, administration of contracts, performance-status producing reports, integrated changes, verification and control of project's scope (PMI 2004). Control function is a key aspect of implementation processes (Noble 1999). Heerkens (2002) classified the targets, which should focus on control, into two types. Those pertain to the consumption of resources, which are schedule and cost, and those with the deliverables of the project, which are functionality and quality. Crawford et al (2003) observed that the particular terms ‘‘monitoring" and ‘‘evaluation" are intimately linked. This has led to considerable confusion in trying to make the measurement and evaluation systems operational. On the other hand, the opinion of Englund (2000) is that control is usually an illusion – better to focus effort on results, not on controls. If organisations do not clarify and prioritize strategic goals, individuals will decide on their own what to do. The organisation then ends up with whatever those people want, not necessarily what is strategically important.

Project Closing an post project review

Closing processes are carried out to verify a phase, or project, and to contract itself termination in success, cancellation or even failure, according to scope. Corrective actions are established as a link-feedback into all project management knowledge-areas. Dinsmore et al (2006) support that, at the other end of the project, closeout is equally important. This is particularly so when it embraces not only the finishing and documentation of the work but also the lessons learned from the project. It also includes the pursuit of making final, or complementary, adjustments to achieve the project's established business goals.

PMI (2004) is reflected by mapping the processes of project management knowledge areas within process groups. This indicates their interactive relation and the activities that take place in a project progress.

Integration management area

Integration management is used to make integrative actions based on the interactions between processes. This means to identify, define, combine, unify, consolidate, articulate and coordinate various processes of project management activities in relation to process groups.

Every so often, project deliverables require integration with ongoing operations in relation to long-term strategic planning that takes future problems and opportunities into consideration.
By the PMI (2004) definition, this area relates to process groups by developing (and interacting with) project charter and preliminary scope, planning, execution management and monitors and controls. It also relates by applying any required changes and, finally, by closing the phase or the project itself. All mentioned processes, in relation to process groups, are defined in a system with standard inputs, tools and outputs. They interact by the processes inputting information while another process is assessing it and producing feedback to the appropriate linked process in order to achieve a feedback reaction for new input. This circulating process continues until the necessary outputs fulfill the requirements for the final stage of the projects closure. There are diverse factors, variables and parameters influencing the progress of this knowledge area process. For example, enterprise environment factors, level of technology usage, the judgment expertise, performance level, the quality of produced inputs, the number and type of corrective actions and, finally, time cost and quality, which are the main conceptual factors.

As an activity, project chartering produces a variable definition of project's requirements, justification of business needs and project's targets, milestones, stakeholders' influences, participation level of functional organisation, estimation of budget and ROI, and the authority level of project managers. As an input, it requires a contract from the customers (when this is applicable), Statement of Work (SOW), enterprise environmental factors and organisational process assets. The latest are organisational culture and structure, regulatory standards, infrastructure facilities, human resources capacity, authorization system, marketplace conditions, stockholder's risks tolerances, informational databases and information technology tools (PMI 2004). Consequently, gates (or transition milestones) represent control points by which the team and management determine if sufficient progress has been achieved within a phase in order to transition to the next phase. Generally, a comprehensive set of criteria have to be established as a baseline for assessing whether these gates have sufficiently been achieved to enable the phase change to be approved (Martinelli et al 2005). All those are important variables for a project chartering activity in the integration process. Organisational process assets are represented as a parameter of the knowledge base of previous projects. Also included are all the processes and procedures that are needed. They are to be defined as constraints for the project charting formulation.

Scope management area

The knowledge area of scope is divided into the product and project scope and includes scope planning, definition, work breakdown structures (WBS), and verification and control. These

interact with other knowledge areas as well. Each are also perceived as a system, which has input, tools and output (PMI 2004). It is valuable to mention here that, in scope definition activity, the important outputs are project objectives, requirements, boundaries, deliverables, acceptance criteria, constraints, initial project organisation, initial defined risks, milestones, fund limitations, costs estimation, execution specifications and required approvals. In addition, it is important to view the WBS output as a dictionary of cross-referenced activities to be executed. There are influencing links established between project charter, enterprise environmental factors and process assets, with scope planning activity, links between project execution and scope verification, and links between scope control and project management plan which, in turn, influences the planning and definition of the scope (PMI 2004).

Time management area

According to PMI (2004), time management involves the processes that are required to accomplish timely completion of the project. These processes are the definition of activities and their sequence, the estimation of duration and resources required and, finally, the development of a schedule and the control of it. They also interact with each other's knowledge areas and have input, tools and output, which drive the other inputs of other areas. There are influencing links established between project scope definition and enterprise environmental factors and links between process assets and activities definition, resources and activity duration. There are also links between risk management, resources allocation and activities schedules and duration. All the while, the control function of this process regulates the integration change of a project management plan.

Cost management area

Cost management (or life cycle costing), includes the processes cost estimation, budgeting and control, in order to guarantee project completion according to a predefined and approved budget. They also interact with other knowledge areas and have input, tools and output, which drive the other inputs of other areas. At times, it also includes links with other functional business areas, such as the financial management department. One of the links is with stakeholders, by requesting costs estimations. The initiation stage of a project is a critical cost estimation activity and is directly related to scope definition processes. In turn, it has links with the program and portfolio management in the context. In addition, cost management is linking and forwarding information to earned value management. Every time a new product or project is being planned (or an existing product or project needs improvement), the application of value management is to be considered. When a project is not evolving according to plan, or when one of the project parameters or objectives is not achieved, value management techniques are used to bring it back on track (Thiry 2004).

There are influencing links established between project scope definition, enterprise environmental factors, process assets, WBS and cost estimation activity. There are also links between contractual agreements, resources activities, scheduling and cost budgeting. Cost control influences integration changes, which in turn influence cost estimation. Risk management and risk levels also have an influence on both scheduling and cost management (PMI 2004).

Procurement management

Procurement management is all those administrative legal contractual agreement processes of purchasing or assessment of the results (products or services) from external vendors, which are required for the project. It has links to internal project management context areas and external organisational environments.

Quality management area

PMI (2004) states that quality as a management system is implemented through quality planning, assurance and control according to predefined polices and procedures. It has two quality variables - results and project implementation processes. This refers to stakeholder's analysis and project progress and continues improvement with prevention over inspections. The linked inputs here are from the entire project management context from all knowledge areas and processes.

The tools used are from general quality knowledge areas and the outputs are quality plans, recommendations for changes, prevention actions, reengineering, new controls, and new tools. Orwig (2000) identified project quality debriefs that come from the following areas - project performance against objectives, project performance against schedule and budget and process performance. Projects tend to use qualitative approaches, such as benchmarking and flowcharting, while operations use more quantitative, data intensive approaches, such as statistical process control. Fundamentally, though, both disciplines are supported by the same principles of customer focus, teamwork and continuous improvement.

Human resources management

Human resources management involves the processes to plan, organize and develop. These are done by assigning roles and responsibilities and by managing the project team. Interaction and overlapping between the latter processes also exist. The links here are with the subset (the project management core or leadership team), the sponsor of the project and the project team. Risk management and re-planning analysis are also linked with this area due to the possible

addition of project members after the requirements estimation of planning and WBS processes. It is suggested to involve team members in earlier stages of a project in order to add expertise to the planning process. Functional HRM organisational processes are also linked and play an important role in training, performance, awards and other processes (PMI 2004).

Knowledge learned during project implementation is extremely valuable and becomes a part of the historical database for future use by the organisation.

Communications management

Communication management processes provide the critical links by organizing and planning the needs, information distribution and performance reporting among all areas, processes and people. Information that is necessary for input, further process taking decisions and producing outputs are forwarded with the planned communication flow. Information urgency here is a strategic parameter, which links this area with all others, including business strategy (PMI 2004). Project management is associated with portfolio management efficiency (directly) in the form of information availability and project management efficiency, and (indirectly) in the form of information availability, goal setting and in making decisions (Martinsuo 2006).

Project risk management

Project risk management is all consuming throughout the project progress. Increasing positive effects does this as does decreasing the impact of negative events by conducting risk management planning, identification, analysis, responses, monitoring, control and acting proactively. It is linked to the entire project management context and business strategy and can be applied in the earlier stages of portfolio and program management formulation of strategic sets of projects. It involves experienced project's members, based on the needs of the project. Risk, as an event, positively or negatively affects the main project management factors, which are time, cost, quality, human resources and scope (PMI 2004). The theoretical difference between risk and uncertainty is perhaps best explained by decoding two jargon terms. Risk can be said to be aleatoric, whereas uncertainty is described as epistemic. Aleatoric is derived from the Latin word alea, meaning dice. This indicates that a risk is an event where the set of possible outcomes is known, and the probability of obtaining each outcome can be measured or estimated, but the precise outcome in any particular instance is not known in advance. Thus ‘‘risk" strictly refers to an unknown event drawn from a known set of possible outcomes. Epistemic comes from the Greek word episteme, meaning knowledge. The suggestion here is that uncertainty relates to a lack of knowledge about possible outcomes, including both their nature and associated probabilities. An ‘‘uncertainty"

is, therefore, an unknown event from an unknown set of possible outcomes. The relationship between risk and uncertainty, and the distinction between aleatoric and epistemic, are captured in the following couplet - Risk is measurable uncertainty; uncertainty is immeasurable risk (Hillson 2004).

Project management strategic approaches

Strategic Project Management (or 'SPM') is defined by Grundy (2001) as the process of managing complex projects by combining business analysis (strategic, operational, organisational and financial analysis) and project management techniques. This is done in order to implement the business strategy and to deliver organisational breakthroughs.

Artto and Dietrich (2004), suggest that an important managerial challenge, involved in aligning project management and business strategy, is encouraging individuals to participate in using emerging strategies in order to create new ideas and to renew existing strategies (Morris et al 2004). Business trends today require the integration of multi-project concepts with those of traditional single-project management. A typical situation entails a limited pool of resources, which is applied to the management of several projects with people moving back and forth between different assignments in different projects. From the study of Fricke et al (2000), it was found that most of the differences center on resource allocation and flexibility. Factors, such as ownership, staff experience, and communication, take on additional dimensions when considered in a multiple versus a single-project environment. Other factors were shown to be division and assignment of resources, prioritization, and customized management style.

Strategic Project Management, identified by Grundy (2001), is to define the project, create the project strategy and, at its final stage, review and learn. More analytically is the creation of a strategic vision for a project by defining the options of producing targeting deliverables, prioritization of projects and their interdependencies with other projects (or mini projects). Shenhar (2005) identified Project Strategy as what to do, and how to do it, in order to achieve the highest competitive advantage and the best value from the project. Often, Mini-projects have 'soft' critical paths for small yet critical improvements. A key concept in the strategic project management process is the ‘critical factor' or ‘critical element'. ‘Critical elements' should receive constant and careful attention from management, as they drive the organisation to focus attention on the success of the project at hand (Asrilhant et al 2005).

The term ‘project management strategy' is used to define a strategy for the management of a project to differentiate the concept from a ‘project strategy', which usually refers to a high level plan for achieving a given project's objectives (Anderson et al 2003). In accordance with

the 2000 PMI Guide to the Project Management Body of Knowledge (2004), content and context elements are the influential elements that affect the achievement of a strategic project's outputs. These influential elements are, 1) positioning each part of the project effectively, within the organisation, so that it gets the attention it deserves, 2) defining the project (or projects) scope, interdependencies, 3) identifying key activities, planning and managing timescales and mobilizing resources and 4) sufficiently diagnosing the project's problems with key "taken-for-granted" assumptions and identifying key implementation difficulties, managing stakeholders, and dealing with issues of uncertainty. The three factors that Bourne et al (2006) used to assess the relative importance of stakeholders were the proximity (which means if they are closely associated or relatively remote from the project), the power to influence and the urgency (if they are prepared to go to any lengths to achieve their outcomes).

Project strategy is specific and focuses on the project to be executed and deployed; it is based on a specific set of objectives and project scope. Without a project strategy, it is unlikely that the project would be planned very well. A business strategy is more comprehensive, from an organisational perspective, and focuses on embracing IT, marketing, sales, manufacturing, and HR and the ability to forge ahead of its competitors (Charvat 2003). Organisational project management refers to the sphere of management and not a part of the organisation itself - it is the management of it. Rather, it recognizes that structures change as strategy changes and the important thing is that they are linked together in a dynamic strategizing process (Aubry et al 2007). The management of projects is essential for strategy delivering and is a "whole organisation" activity, something that needs to be looked at from an enterprise-wide point of view (Dinsmore et al 2005). Morris (2005) found that the creation of business cases was a key element of the business and project management interface within all the companies that participated in his study. Subsequently, business strategy, in most of the companies, translated into a comprehensive project strategy using project management processes. It creates and translates its strategy from the corporate to project level through a hierarchy of processes - these are contained within the overall plan of the business process. Corporate strategy, within a company, is a portfolio of integrated business strategies that deliver corporate intent and are consistent with the financial constraints facing the company. Strategic requirements are analyzed, taking into account the relevant internal and external influences and, particularly, the competitive environment. The group is part of a large company with operations in a number of countries and continents. In the same way, business strategy is derived from corporate strategy and the group investment plan using a strategy development process. Business units also develop strategy plans, and align business strategy

to the corporate vision, mission, strategies and objectives, using the same process. They also identify the strategic programs and projects to be pursued in order to achieve their objectives.

Strategic management becomes increasingly project oriented and organized in a new level of evolution which project-oriented strategic management defines as a tool in the achievement of a higher competitiveness of the company. Strategy formulation and project preparation must be joined; thus, implementation of global optimization of resources, elaboration of logical project plans, and anticipation of all conditions and measures required for a successful initiation of project management and implementation are carried out simultaneously. Thus, a higher quality strategic decision-making is ensured (Hauc et al 2000).

Projects are, by definition, transient phenomena and very few companies have developed the means to identify and build upon transferable lessons. Indeed, an effective means of conveying what was learnt during projects has been noted as one of the key factors leading to consistently successful projects (Lycett et al 2004). Cavaleri (2000) argues that project management systems, because of their fundamentally exploratory nature, provide a near-perfect vehicle and context for integrating what an organisation's learnt into existing business processes. The projects undertaken to improve business performance serve concurrently as a manageable context for organisational learning and is the way of practicing an intelligent project management process.

Tools from strategic management, value management and organisational change can he imported into mainstream project management practice in order to considerably enrich traditional techniques. This is valuable in complex, multi-functional projects, which are driving business strategy into implementation. In order to derive the maximum benefits from value management, organisations must implement it at both the strategic and tactical levels, which mean that clients should accept that value is the ultimate goal in any project endeavour. It is very important, in order for value management to realize its full potential, that the client and project manager be convinced of the power of value management integration and obtain commitment from all the participants early on in the project when no firm commitments have been made by any party. This will save costs in redesigning fees, claims, and useless efforts (Thiry 2004). Strategy-related projects may be poorly scoped or time bounded. Paradoxically, strategy implementation projects should actually be defined with much more rigor than usually is the case. Strategic implementation projects need to be refined and continually steered in the right direction. In effect, these projects need to be guided much more sensitively towards their target, as opposed to the more traditional, 'fixed' notion of a project (Grundy 1998). It is not practical to start a project with business strategy or objectives, but

management can move into a project mode to develop the project objectives. A project mode should start when the business objectives are emerging and when there is a set of holistic project objectives (Anderson et al 2002). Ideally, value management should be implemented in the very early stages of a project when a commitment has not yet been made. This enables value to be used to its greatest potential - to clearly identify the expected performance and functions of the product/project. If this is not possible, it is still feasible to use value management very effectively at any stage of the planning or development phases of a project (Thiry 2004).

Dinsmore et al (2006) identified five key project management practices, which are crucial, in addition to the quintessential tasks of leading, managing, and motivating the project team. These five practices are - clarifying goals and objectives, clarifying technological requirements, planning and controlling the project effectively, managing risk, and having resources for the project. Grundy's (2000) viewpoint of strategic project management behaviour stresses the extent to which cognitive, emotional and territorial perspectives and agendas of managers are interwoven. Those aspects of strategy implementation, which are perhaps less easily discussible by managers, involve power - whether manifested through offensive or defensive behaviour, or through alliances or because of emotional sensitivities.

Morris (2005) argues that strategy implementation is often a complex activity drawing on strategic elements. This is applied from a wide range of project management practices, such as risk management, value management and supply chain management, as well as incorporating some form of interaction with a whole range of other factors shaping the nature of the project - stakeholder requirements and technical definition, marketing, finance, and so on. On the other hand, achieving alignment between the project and an organisation's strategy may prove difficult, as strategy itself is frequently an umbrella that permits a range of options rather than a clearly and tightly defined set of goals. In addition, the very act of developing project proposals interacts with, and shapes, the organisation's strategic options, as has been highlighted in numerous industry specific case studies (Mintzberg 1985). Work by Morris and Jamieson (2004), in integrating what the PMBOK and the APM BOK have to say about the way strategy shapes project definition, shows the large number of factors involved in creating project strategy at the front-end of a project. Turner (1999) argues that it is better to advocate the development of a comprehensive definition of a project at the start of the project, in which business plans are aligned with project plans that contain key elements of project strategy. An organisation's operations strategic project management is comprised of four key competitive priorities, such as cost, quality, flexibility and timely delivery of produced products (Vassilopoulos 2004). The importance of the project definition phase, in

Grundy's framework (1998), is that, even at this early stage, project definition raises the important issue of how to evaluate (and value) projects. Project definition may also lead to dissecting the project activities, within a strategic project set, into discrete projects. Alternatively, it may involve re-bundling interconnected projects together to create a greater leverage and critical mass, and thus a greater economic value. Project definition also requires a relatively intensive diagnosis process prior to detailed planning and certainly prior to commencing implementation. This highlights the need for an effective way to manage project strategy creation, covering not only the front-end of a project but the entire project lifecycle. Though developing strategy obviously occurs at the front end of a project, it often encompasses the entire project lifecycle. Integrated Logistics Support, Operations and Maintenance, and Whole-Life Costs, for example, may well figure importantly in the strategy (Kirkpatrick, McInally & Pridie-Sale, 2004). In fact, as the case studies reported below show, many companies have developed structured approaches for creating and managing project strategy that cover the entire project life cycle and are integrated with the business strategy development processes. The relationship of a project to an organisation's strategic plan identifies the management responsibilities within that organisation (PMI 2004). Project management strategy is not a singularity, like a stranded rope it is a plurality of strategies derived by addressing all the elements of the domain model to create a coherent, holistic entity (Anderson et al 2002).

Morris (2004) accedes to the argument that project and program management is clearly widely used as a means of implementing business strategy and is a key process, systematically and in a hierarchical manner.

Project strategy is managed dynamically as there is a flow upwards through the links from projects to business strategy, which influences and alters the strategic landscape. By this approach, the sponsor is responsible for assuring this strategic contribution and the success of the project. As a critical part of anticipating the dynamics, it is essential to consider the potential changes in stakeholders and in their attitudes and agendas, as these play a decisive role in shaping the dynamics, for good or for bad (Grundy 2001). In their study, Larson et al (1989) found that sufficient resources are related to controlling cost, technical performance, and overall results, but are not related to meeting schedules. Project priority is related to technical performance, meeting schedules, and overall results. Neither novelty of technology nor project complexity is related to any of the success measures. Sufficient resources and project priority are also related, to a lesser extent, to project success. Finally, they found that the insignificance of project complexity might be attributed to insufficient variance to gauge its effect on success.

Morris (2004) considers that project strategy governance, through project management processes, has a management link within the context of business strategy and the regulation variables, which optimise the first, are value management in combination with risk management. On the other hand, the combination of risk management and quality management is not mere coincidence, but rather greatly beneficial since risk management is an ideal means of focusing quality management activities (Getto et al 1999). This reveals the relationship between quality and risk management. This interaction context was found to be common, clear and well managed. Project management, as a discipline, should recognise this context within which, and by which, it is governed.

Calahan (2004) identifies the (STO) Strategic, Tactical and Operational model as a strategic management approach in project management implementation. He connects that model with project management processes with communication as a key factor. In addition, the alignment of projects with business strategy is referred to as the link between projects' performance and upper management. He also gives great attention and weight to the initiation phase of a project. The best project management organisations have a clear, well-communicated strategy and know how each project supports it (Longman et al 2004). Project management efficiency is a significant mediating factor between single-project factors and portfolio management efficiency, whereas the reaching of project goals mediates between single-project factors and project management efficiency (Martinsuo 2006). The failure of strategies is not during the process of analysis and goal settings, but during implementation and particularly due to the lack of proper project management (Merwe 2002). Grundy (2001) identifies the strategic option criteria as strategic and financial attractiveness, implementation difficulty, uncertainty and risk and acceptability to stakeholders. Artto and Deitrich (2004) address how multiple projects can be collectively aligned with business strategy in a manner that generates enhanced benefits for the whole business. They also address the role of specific projects in implementing, creating and renewing business strategies. There is a widespread view that project management is largely about execution. As a result, the vitally important period of front-end definition, and the role of management in this, is too often overlooked (Morris, 1994). Developing effective strategy for a program or project implementation bears directly on the important front-end definition phases of project definition and assessment.

Martinsuo (2006), in a study on single project management and empirical research, referred to portfolio management efficiency and found success factors, such as clear project goals, information availability, systematic decision making, top management ownership or support, management by project type, standardization of PM, metrics and measurements. Translated,

this means that the degree to which projects have clearly specified goals is linked to portfolio management efficiency. The availability of information on single projects for decision makers is linked to portfolio management efficiency. Systematic decision making, as a part of the development process, is linked to portfolio management efficiency. Reaching project goals is linked to portfolio management efficiency. Project management efficiency is linked to portfolio management efficiency. Another important factor is the phases and gates in project management context. Phases represent the major steps of the product development life cycle, which include such activities as feasibility of the product, planning, design, ramp up in manufacturing and product launch. Lampel (2001) argues that the core processes that structure activities and routines can describe the life cycle of large projects. The transition from one process to the next is often punctuated by key events during which the impact of core competencies becomes strongly evident. Lampel (2001) also suggests that the successful implementation of a project could be achieved by developing a positively reinforcing relationship between core competencies, project choice, and project portfolio. Crucial to achieving this virtuous cycle is acquiring, developing, and managing the correct mix of key competencies.

Business processes are continuously and incrementally improved through controlled adjustments.

Within this framework is a clear distinction between management control and operational control, which concentrates on the control of specific operations (Nilsson et al 1999). Projects can have the goal of applying continuous, incremental improvements in business processes. This is the endless relationship and linkage between business processes and projects. This aspect of the link reveals project management as the point of departure for all management theories, while management directs the behavioural processes of people. Management also controls the continuous, incremental improvement of business processes in the organisation, through projects that guide the business process, to address the change in the business strategic direction (Merwe 2002). Hauc et al (2000) states that project management merges more and more with the existing management. Nevertheless, Dinsmore et al (2006) acknowledges that if an organisation is to achieve project success, each project must interact with the business unit, and functional line management, at six critical points during its life cycle, starting with portfolio management, governance, stage gate reviews, skilled resources and benefits from project implementation. Commissioning (or handover) of the project to operations strongly influences the benefits that the organisation will realize. This handover must be managed every bit as well as the main part of the project, so that the product is

enthusiastically embraced by the on-going operations management and personnel. Otherwise, that main-project effort could all be for naught. Stock et al (2001) hypothesized that an emphasis on flexibility in an organisation's operations strategy would be positively associated with effective outcomes in projects implementation. Grundy (2000) stated that strategic projects have become a vital way of bridging strategic and operational management, but their very success is impeded by a lack of both analytical and behavioural techniques. In a study on behavioural drivers impacting on strategic projects, it was found that when the team had a narrower focus of attention and was more able to share the cognitive maps and assumptions of key individuals, there seemed to be far greater momentum and harmony in its behaviours. Consequently, the more cognitive clarity that exists within a team, ceteris paribus, the less behavioural turbulence is likely to exist.

Oltra (2005) differentiates project management from the management of other production processes and identifies the disadvantage of considering every project management's project process to be equal. Tikkanenet al (2006) stated that the project-based organisation develops a complex portfolio of relationships to customers, suppliers, financiers and other relevant network partners. The terms project-oriented or project-based organisation (and the more generic term of managing by projects) can be applied to organisations whose strategic business objectives rely on results from projects or programs.

Project management research has, therefore, attempted to address the area of strategic management through multiple projects. Project management research, however, has yet to succeed in identifying and addressing all issues that would be important in strategy implementation, with multiple projects, in a real-life business context. Fricke et al (2000) argues that, paradoxically, most of the current literature on project management still focuses on the study of a single project in isolation, assuming limited interactions among projects. Project business is an evolving area both from a scientific and managerial point of view. It is a starting point for building practical project business applications, and a good point of departure for deepening the content of project business in further research (Artto et al 2005).

The Project Management Office (PMO)

Finally, the Project Management Office (PMO) seems to have a key role in organisational project management context, as a mediation function, by managing the project management system. Aubry et al (2007) noted that the emergence of (and the need for) the PMO is associated with the increasing number and complexity of projects throughout the business world, which has led to a certain form of centralization. As it can receive delegated authority

from business, the PMO can act as integral stakeholder and key decision maker during the initiation stage of each project. It is the centralization of various functions and features of project management. The PMO has a number of key dimensions and responsibilities that should be identified and considered. These have been subdivided into organisational factors, human resource responsibilities, responsibilities for setting project management standards, project execution responsibilities and strategic responsibilities (Tinnirello 2001). The link and influences of a PMO are obvious in the strategic hierarchy of business objectives implementation. Since 1990, project management offices have been proposed as solutions to ensure that projects remain on course and ultimately contribute to an organisation's strategy. The theory behind PMO's rests on the assumption that a central point is needed in an organisation to standardize the project management methodology, create efficient information communication and to administer a project's control systems. The main reason for the failure of PMO's is the organisational politics and the stockholders' mismanagement (Dinsmore et al 2005). Martinelli et al (2005) example of a PMO is at Tektronix Inc., who had implemented a worldwide PMO that was designed to integrate the coordination and control of all of its global product development activities and provide senior management with frequent "Dashboard"-style reporting of program progress. Tektronix's PMO infrastructure and activities significantly improved communication worldwide and contributed to the company's responsiveness in resolving key program barriers and issues. Additionally, the PMO helped Tektronix maintain consistent process implementation and practices across all programs and well-defined roles and responsibilities for both management and program team members. Calahan (2004) stated that it is probable that a centre of excellence PMO would also be on the strategic level, to ensure that best practices are maintained and that strategic objectives are implemented. It can be enacted as a mediation process to link the two business contexts, business strategy and project management in all levels. PMO is one of the dynamic structures within organisational project management and creates relations among a great number of participants (some nonhuman) involved in the management of projects (Aubry et al 2007).

4.6 Organisational strategic alignment and links

PMI's PMBOK® (2004) has established a link between strategic plan, containing the strategic goals, and project scope management processes in reflection to projects' implementation. However, while PMBOK® signposts the process connections between strategy and action as it is short on detailing the substance. By focusing on strategic and operational effectiveness, management is encouraged to focus on the company's bottom-line impacts. Siciliano (2002) stated that organisation strategies often consist of corporate wide themes, such as quality, innovation, environment, and safety, which reflect the firm's identity and must be shared by all units. The strategies may also be based on linkages that create synergies among the units, such as core competencies, integrated approaches to customers, and supplier relationships. That is, management has to define its strategic intentions and what it intends to do to improve the company's performance through those strategic intentions (Benson 2004). Calahan (2004) recognised as a real key of success by liking projects to strategy, throughout the entire company, including overall organisational projects.

Linking projects to strategy process, involves a quest of working with discipline, but also have the capability to engage many projects with unclear objectives and fighting for resources, as the politics are getting ugly sometimes. A worthwhile objective would be to turn the outcome into the Good, the True and the Beautiful. Ancient Greeks called the three great value spheres of ethics, science, and art the Good, the True and the Beautiful. All three were considered necessary for a genuine education and balanced leadership. Balancing the three dimensions of good, true and beautiful transforms our thought processes, creating tremendous positive impact on the ability to be effective and efficient in gaining support for project work (Englund 2000). The strategic interaction is at the front-end of this link. Once moved into implementation and while there seems to be a strong management of the interaction between business plan and program plan thereon the level of control is less and is more scattered (Morris 2004).

Alignment is the process of ensuring that all business functions operate in harmony with each other to support the business scope (Pietersen 2002). Robert Dubin (1978), in his landmark book "Theory Building", stated that a theoretical framework must satisfy the major characteristics, which includes units and variables, laws of their interaction, system boundaries, and propositions (Lynham 2002). Such a framework must bring results from an analysis and should explain the alignment process at the strategic level, the project level, and the corrective emergent feedback level, as well as capturing the interrelationships project management and business strategy. Knutson et al (2001) argued the key to organisation

project management alignment with strategy is to connect all parts of the organisation into an interrelated comprehensible model with a shared purpose culture by integrating core business factors, market factors, overall direction and leadership to achieve consistent and defined levels of growth and peak performance. As shown in Figure 4.6.1, two approaches are significantly different. Using a traditional approach, it is often found that rather than aiming to create competitive advantage through projects, project managers are forced into the mode of trying to 'minimize the negative potential' of projects. Traditional approach has a weak link between project and organisational strategy. Lack of coordination between projects, inevitable resource conflicts and project managers are trying to minimize negative potential of projects. Thomas et al (2002) findings suggested that significant disconnects exist between project managers and senior executives of the organisation, regarding project management. Senior executives fail to see project management's connection with the goals of the organisation.

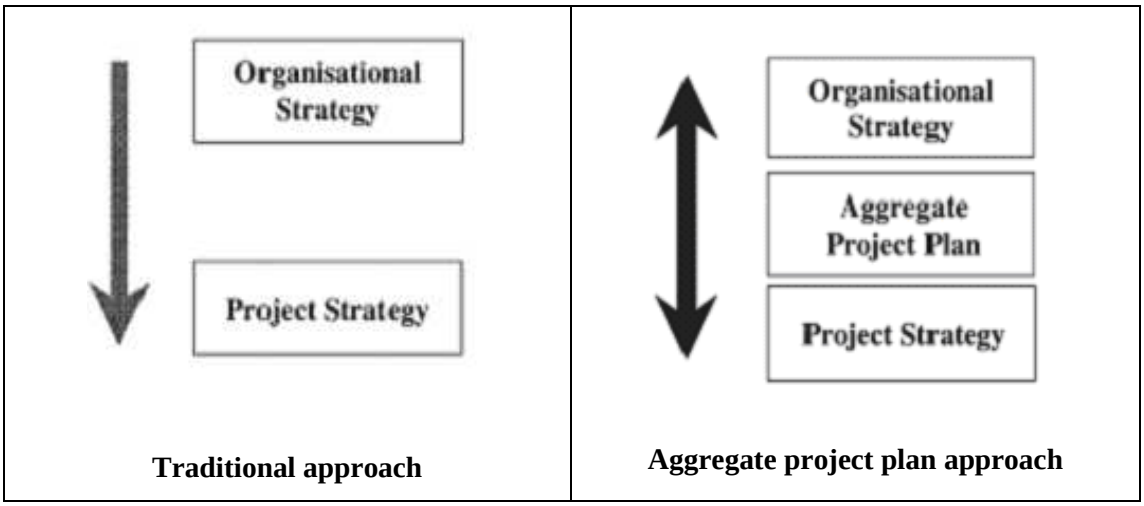

Figure 4.6.1 Approaches to strategy link (Harvey 2001)

An aggregate project plan approach is more qualitative with a coherent coordinated, focused and strategic driven intension. This is contributing to policy forming and policy deployment, strategic competence in project management and provides a source of competitive advantage. In the literature on the traditional approach to project management, all of the project systems are geared towards assuring conformance to budget, scope and time constraints. Higher level considerations such as the need for excellence, continuous improvement and achieving customer delight are apparently outside the scope of the project manager. This is a major weakness and one that is similar to the manufacturing management approaches to quality management of the 1960s, where the emphasis was on quality control and conformance to standards and specifications. The quality revolution in the 1980s and 1990s completely changed the agenda in manufacturing, but this paradigm shift seems to have passed project

management by in both the literature and many instances of practice. Whilst project managers are judged by measures of conformance, the modern project requires real performance (Maylor 2001).

Englund (2000) represents an experimental model for linking projects to strategy. The emphasis is on the process in selecting a portfolio of projects that meets a strategic goal. It begins with a focus on what the organisation should do, and then moves into what it can do. A decision is made about the contents of the portfolio, and then it is implemented. The steps continue in an interactive fashion. Each step has a series of outputs, and the outputs of succeeding steps build upon preceding steps. The steps and outputs are interdependent, as in a true system dynamics model. Developing and implementing a process, such as this, means that a successful approach can be achieved, replicated, improved, and shared. Management must work together as a team to implement this process.

Englund's (2000) conclusions for the linking process are as follows: A process is repeatable and improvable, selecting from several choices occurs at all levels in an organisation, clarifying any misunderstandings. The criterion for success varies, depending on business and the development stage. The pair-wise comparisons [of projects under each criterion] ease decision-making. The Explicit commitments create action. By prioritizing and selecting fewer projects, a greater capacity within the organisation is created and, finally, a balanced mix of projects supports strategy.

Martinelli et al (2005), explains the link of program management to business strategy as follows: During the strategic planning process, organisations create a set of strategic objectives to gain competitive advantage and achieve business growth. Strategic objectives are the results an organisation wants to achieve within a specified strategic horizon. Programs are then developed to create the means to achieve the objectives. For each program, a program strategy is developed to define how the program will contribute to the achievement of the strategic objective, and serves as the guiding vision to align the resulting project work. The program strategy guides the behavior required to achieve the business results.

From another point of view, there are indications about the important linkage between R&D processes, strategy and objectives. Liao et al (2000), found evidence to support the necessity of the integration between corporate R&D decision making and strategic management. This is because each strategy alternative seems to not only influence the decision making of corporate R&D, but also lead a particular direction of a corporate R&D program and/or project. Therefore, it is important that an R&D project chosen must be consistent with a

competitive strategy and play a role in reinforcing the competitive strategy. In addition, an R&D project must be treated as an activity guided explicitly by a particular competitive strategy during the life cycle of a project.

The alignment between product/system architecture and project organisation is crucial (Eppinger 2003). Orwig (2000) said that for a project-based organisation, such as professional services organisations, formal project management is quality management. Moreover, quality management fundamentals applied to the project-based organisation is good business. Both organisational and management considerations in project business are linked to the organisation, its business, and environment. A need for adaptiveness in processes and actions links project business to a general need for cross-disciplinary and in-depth understanding of the business as a large area. This has also an impact on practical capability requirements among projects' key stakeholders.

For example, Wainwright (1995) stated that to link marketing strategies with implementation strategies, a concept of order-winning criteria proposed, with the major criteria being product price, delivery, quality, flexibility and reliability. These criteria, although common across all products, will vary in importance with the type of product and associated markets. This statement is implying a link with strategic intent, (the marketing in this case) and quality of the final products. Bonoma et al (1988) noted the intertwined nature of strategy and implementation in a study, through a series of in-depth interviews with high-level executives and validation through a series of 44 case studies. The findings raised an interesting point that implementation structures and skills influencing the nature of the formulated strategies. In parallel, structural variables and managerial skills are key issues in implementing organisation's strategies. On another study, Blomquist et al (2006) used a qualitative approach, with nine interviews and a quantitative collection of 242 questionnaire responses to develop a framework of program and portfolio management-related which was based on the degree of environmental turbulence and project types. Research results showed that program and portfolio management practices are determined by the complexity of the environment. Higher complexity, expressed as the number of factors taken into account during decision-making, leads to use of a specific program and portfolio management practices, which are processes and tools such as the selection of projects based on the organisation's strategy, the prioritization of projects, and communication of the priorities.

Creating and maintaining alignment of purpose for change initiatives requires an understanding of the environment in which the change is being made, good leadership and effective project management (Southam et al 2005). Tikkanenet al (2006), argued that the link

to strategy reflects alignment between projects, and the strategic content and resource allocation intended in the strategy of the business. This link can be achieved by applying strategic reviews and checks, by building the strategic criteria into scoring models, project selection tools, prioritization models, or by applying top-down strategy models. Southam et al (2005) argued that alignment is not something that can be achieved and then forgotten about, but it needs constant attention throughout the project's lifecycle. Aubry et al (2007), stated that there is a confusion in the literature steming from a semantic gap between the meanings given to the concepts of program and project portfolio and is related to the identification of processes responsible for this function, and whether they are program or portfolio processes.

Strategic alignment is generally considered to be a function within the organisation. Avisona et al (2004), argued a different approach of link business strategy and implementation. The setting of strategy and the prioritisation of projects is determined jointly by business and IT management. The company views the integration of these two processes as integral to achieving and maintaining strategic alignment. On the other hand, the IT strategy remains separated and supports the business strategy, aligning all its initiatives to business strategy down to the lowest levels. The output from this process is a set of projects. Alignment is also maintained at the project level. According to Dietrich's et al (2005) empirical survey of 288 organisations analyzed practices that organisations use in managing development projects. Organisations successfulness in managing strategic intentions in a multi-project context was measured through the following three statement-type indicators: The objectives of the projects are aligned with the strategy of the organisation, resource allocation to different projects were found to be aligned with the strategy of the organisation and the current portfolio of projects for implementing the strategy of the organisation. The results reveal that organisations which are the most successful in managing their strategic intentions in a multi-project environment tend to review the objectives of their ongoing projects in linkage with strategy formulation. In addition, the most successful organisations review their project portfolio in linkage with the strategy follow-up process. This approach is clearly indicating that the management of projects and group of projects such as portfolios and programs should be included as a part of the strategy process for the organisation to be able to implement its strategies successfully.

In addition, portfolio management has an intertwined relationship with traditional line management roles, and could, in fact, be studied in isolation but also in combination with other line management tasks. According to research of Meta group (2002) white paper in a portfolio and strategy alignment, 89% of companies are flying blind, with virtually no metrics in place except for finance. 84% of companies either do not do business cases for any of their projects or do them only on select, key projects. 84% of companies are unable to adjust and

align their budgets with business needs more than once or twice a year. Salmela et al (2002), in their study referred to the "Continuous Strategic Alignment" method described by researchers from the MIT-school in the early 1990s. In essence, this method identifies five different alignment mechanisms which are: governance process, which specifies the allocation of decision rights, technological capability process, which specifies and modifies the IT products and services needed to support and shape business strategy, human capability process, which specifies and modifies the various human skills to support and shape business strategy, value management process, which allocates the required resources and ensures maximal benefits from IT investments and strategic control which attempts to maintain internal consistency among the four mechanisms.

On the other hand, single project characteristics and management activities are closely related to the overall success of the organisation. They need to be managed well in order to get the most out of the group of projects. Among others, characteristics related to the decision-making activities of single projects, and flexibility and formality of the project management approach have been proposed as variables partly explaining the differences in projects outcomes. Flexibility can be related to the degree of modularity in the projects. Modularity refers to the possibility dividing the project into more or less independent sub-units (Olsson 2005). The quality of information the decision makers have on projects is strongly related to the successfulness of management as well. The availability, topicality and validity of information, indicate the importance of high-quality information in decision making as an enabler or even a prerequisite for the organisations to successfully implement its strategies through projects. But it was found that the formality of decision-making related to conducting a feasibility study on a project idea and initiating the planning phase of the project did not seem to correlate with success. According to Thiry (2004), many new management techniques come and go every year; a few have been around for a while and seem to be here to stay. Project management (PM), total quality management (TQM), design to cost (DTC), risk management, and partnering are among those techniques which can be combined or integrated with value management. Some other techniques have been developed and incorporated into value studies and have become methodologies in their own right. These include function analysis, quality modelling, cost-worth modelling, customer-oriented value engineering (COVE), strategic value planning (SVP), and "Cahier des charges fonctionnel" (CdCF).

The management approaches in a multi-project environment generally distinguish between management efforts directed to single projects and management activities that focus on group of projects. Systematic and purposeful evaluation and selection of projects have been

observed to lead to better results. Success factors found to include management activities both at single project and multi-project level, as well as issues related to the availability and quality of project information and managing the linkage between strategy process and projects (Morris 2004).

Hamel et al (1989) stated that the dichotomy between formulation and implementation is familiar and widely accepted and the strategy hierarchy undermines competitiveness by fostering an elitist view of management that tends to disenfranchise most of the organisation. So employees fail to identify with corporate goals or involve themselves with this strategic intent. There are a number of disconnects that relate to the understanding of project management and its perceived value in business terms. More work is needed to create the awareness in practitioners of its true potential and value at a strategic level (Thomas et al 2002). Hauc et al (2000) identified that a key issue in linking the strategy formulation process with a project start-up process, is whether to commence project definition in the phase of the final formation and completion of the strategy formulation process, or to commence project definition prior to this phase and to carry out certain phases of the completion of the strategy formulation process during the project start-up. The project management and business strategy alignment helps organisations to focus on the right projects, given the objectives of the business strategy (Srivannaboon 2005). Focus and content, helps to express the law of interaction, using two major attributes of the project management element which business strategy shapes per its competitive attributes (Srivannaboon 2004). The linking path is formulated starting from strategic management formulation (business enterprise models and business management processes) and implementation processes through portfolio management processes and program and project management processes which include people skills, knowledge and behaviour (Morris 2005). An organisation should apply the following principles in order to achieve strategic plans rapidly and effectively. Those are the translation of strategy to operational terms, alignment of organisation with strategy, make strategy everyone's every day job, make strategy a continual process and mobilize leadership for change (Kaplan et al 2001).

Achieving the goals of connected information and processes, in an unbroken chain that carries on from business strategy to budgets and actions, requires that management understand the roles to be played and then actually play them (Benson et al 2004). Embarking on a strategic process for linking projects to strategy is a bit like the song from an old movie everyone wants to make sure their projects survive the funnelling process (Englund 2000). The level of uncertainty and risk is highest in the start of a project and get progressively lower as the

project continues (PMI 2004). The deliverables are characterizing the project's progress, so this can be perceived as level of achievement variable.

Englund (2000), states that there are several cautions that can sabotage the alignment process. Simply going through the motions for the sake of action provides only an illusion of productivity. People in the organisation sense when there is a lack of authenticity and integrity and then do not put heart-felt effort into the process. By asking whether control or results, most managers say they want results but careful observation of their actions indicates they are more interested in control. Program managers are the intermediaries between higher management and operations personnel, implementing an organisation's strategy (Blomquist et al 2006).

On the other hand, in the classic project environment, upper management has minimal involvement with course changes within a project. Their primary project roles include endorsing and sponsoring the project, committing resources, setting a project deadline, receiving status reports, managing escalations, and providing rewards to motivate the team. Perhaps upper management's only direct involvement in managing project change might be in approving an unexpected course change before implementation, or encouraging the team to "try something new". Generally, upper management does not get actively involved in steering the project (Chin 2004). Gratton (1996) from the results of the research from London Business School on the linkages between business strategy and individual and team performance, stated that in case of emergent strategy the appropriate processes for visualizing and creating mental pictures about the future are not well understood. Also, there is an important range of human resource issues involved. The optimum level of this alignment requires continuous interaction between strategy and resource teams on both a formal and an informal basis. Similarly, Littler et al (2000) used an object orientation approach to bring together the strategy formulation perspective of Hamel (1996) and the strategy implementation method of Kaplan and Norton (1996). This combination of strategy objects, graphical strategic architecture design and the balanced scorecard provides a pragmatic, implementable strategic information framework. The framework promotes the communication and consensus of the organisation's strategy and forces the alignment of business function goals. Initial indications from the use of this objects based approach in a major UK retail bank suggest that a number of these potential benefits are realised in practice. Hrebiniak (2006) offered a model or conception of the strategy implementation or execution process and its key variables or action steps. It lays out the major elements or stages in the process and focuses on the logical connections and order among them. Consistent with the views reported by managers in his study, there are four contextual factors that deserve

attention when explaining the success of the execution decisions and actions just considered in the model: (1) the change management context, (2) the culture of the organisation, (3) the organisational power structure, and (4) the leadership context. In addition, he was found that "speed" is important when executing changes related to strategy implementation. Benson et al (2004) describes the alignment practice into three parts: strategic alignment, internal project' management alignment and functional processes alignment. Effective management is essential for alignment of business change initiatives, starting with processes to establish alignment at the initial start of the project and continuing with robust project management processes, systems and structures throughout the project's life (Southam et al 2005). One of the best predictors of success is the general quality of cross functional relationships in the firm. These can be improved through frequent communication that enhances understanding and appreciation of functional contributions (Noble 1999). Southam et al (2005) identified a vertical alignment from strategy to individual objectives through chief executives to team members, as illustrated in figure 4.6.2.

Most organisations have ongoing operations that produce products and services and at the same time are highly dependent on projects to increase production capacity, make technological upgrades, and launch new products and services in the marketplace (Dinsmore et al 2006). Anderson et al (2002) in a study with over 30 conducted interviews using a semi-structured qualitative interview technique probe the experience of the practitioners found that several interviewees commented that strategies do not always address all the necessary elements and contingent factors and were not always derived in a project mode. Benko et al (2003) suggests that in an unpredictable world, the process of maintaining alignment is not a one-shot deal, or even an annual activity tied to the capital budgeting process. Instead, it is a continuous activity. As priorities change, as more information becomes available, and as the art of the possible continues to evolve, organisations come under increasing pressure to continually reallocate the limited resources of the portfolio, recalibrate its objectives, and re-evaluate its overall effectiveness. Since what gets measured in organisations is generally what gets done, maintaining alignment requires regular (and eventually, continuous) evaluation of the portfolio. After the initial adjustment of the portfolio, which may or may not be a dramatic intervention, regular monitoring seeks to build momentum for the traits and create greater levels of alignment.

Figure 4.6.2 Alignment from strategy to individual objectives (Southam et al 2005)

In a valuable contribution to the literature Luftman J. et al (1996) make some interesting points in the relation of (IT) information technology and business strategy. He supports that IT can both support and shape business strategy. In this aspect dominates the executive thinking in both business and IT strategy making. This is based on “Strategic Alignment Model”. As the model's title suggests, the focus is on how to develop a synchronous set of strategies and policies within a company, Luftman J. et al (1996) identified four elements that must be brought into alignment with one another: Business Strategy, IT Strategy, Organisational Infrastructure, and Information Systems ("IS") Infrastructure. The Strategic Alignment Model's basic premise is that traditional analysis has tended to concentrate on either the vertical alignment within the matrix (the extent to which infrastructure and processes to support a company's strategy) or the horizontal alignment within the matrix (the extent to which IT approaches support the business approaches). Those authors argue that a company must consider both "strategic fit" (vertical alignment) and "functional integration" (horizontal alignment) to fully develop its competitive potential. Using the two-by-two matrix, the authors describe four perspectives on developing a cohesive strategy. Each perspective starts with a company determining either its business strategy or its IT strategy. Building on that foundation, the company then moves one square either horizontally or vertically in the matrix, and determines its optimal policy for that square. Finally, the company moves to the next adjacent square and determines what approach best suits its selected overall strategy. The Strategy Execution perspective is the "classic hierarchical view of strategic management" top management is the "strategy formulator," and the information systems are designed so as to best implement the strategy. This perspective has recently expanded to include efforts, like those in reengineering initiatives, to use information systems to radically redesign organisational processes. The discussion of these different approaches, exploring how business strategy can drive IT strategy and vice-versa, is very interesting from

a theoretical perspective. Luftman J. et al (1996) argued that the leading corporations use competitive strategies that avoid the classic trade-offs between the mass production and invention models. Dinsmore et al (2006) supports that there are evidently related three distinct groups that hold the key to business and organisation success Senior Management, Project and Program Management, and Functional (Line) Management. Specifically, they identify two important organisational strategies, "Continuous Improvement" and "Mass Customization".

4.7 Influencing factors

Structure

The successful implementation of strategy requires active and premeditated actions that include the coordination of multiple participants and activities, and other actions of a transient and complex kind. Aligning an entire organisation behind the right projects and programs with a comprehensive suite of metrics (that provides, to the right people, the required information), while simultaneously implying continual improvement of all practices and processes of project management context, are factors that are critical to organisational strategy success. Bryson et al (1993) argued that a number of contextual variables strongly influence aspects of the strategy planning and implementation process and, thus, indirectly influence strategy outcomes. Influence variables are organisational - stakeholders' dynamics and politics (in regards to components prioritization), organisational culture, financial conditions and level of organisational effectiveness of processes and procedures (PMI 2006).
According to Thomson (1998), there are external and internal factors, which influence strategic decisions and, consequently, the project management process. External factors are competitive conditions, opportunities and threads. From another point of view, societal, political, regulatory and citizenship factors limit the strategic actions a company can, or should, take. Internal factors are company resource strengths or weaknesses, competitive capabilities, ethical principals, business philosophy, shared values and company culture. Noble (1999) noted that it is apparent that aspects of an organisation, such as culture, organisational structure, and management style, may have a profound effect on implementation processes.

Furthermore, there are several factors that influence an organisation's alignment with strategy. These are internal or external, customers, processes and people. The links between projects and strategy are much stronger where there is a relatively clear, and primarily 'deliberate', business strategy. Strategic management should give its primary attention to managing strategic projects by selecting only a small number of big and difficult projects for attention at any one time, and the management of key interdependencies between those projects. This must occur within an overall strategic vision of the business rather than by developing comprehensive, catch-all business strategies, top-down (Grundy 2001). From another point of view, applications influencing factors are those that come from functional departments, technology, management and specialization of other industry areas. The influencing variables of standards and regulations could be external, such as government laws, quality standards and internal, such as polices and procedures, compliance and security and other company's regulations (PMI 2004). Project environment has influence variables, such as cultural, social,

international and physical. In this respect, Blomquist et al (2006) stated that the variables for project type and organisational environment are classified as independent variables. Program and portfolio management practices, roles, and responsibilities are classified as dependent variables. Traditionally, many key variables affecting the project effectiveness have not been integrated in the same academic researches.

From another approach, McCray et al (2002) identified the impact of several biases, which often arise from the unwitting application of heuristics by project personnel. It must be recognized, however, that projects unfold against a backdrop of political, industry, and other factors that tend to impact, sometimes significantly, the decisions made within the context of a project. An awareness of the most frequently encountered heuristics provides a basis for guarding against their deleterious effects. As with all efforts directed at process improvement, the extent to which the avoidance of heuristics, and their associated biases, is pursued should be commensurate with the risks and resources associated with the project. Project management processes can be markedly improved through the explicit recognition, and purposeful mitigation, of unwelcome heuristics and biases. The definition of a project is affecting and is effected by changes of external factors, such as politics, community views, economic and geophysical conditions, the availability of financing, and the project duration.

Govindarajan's (1988) study findings showed that matching key administrative mechanisms, such as organisational structure, control systems, and managers' characteristics with the strategic focus, are important in achieving effective strategy implementation. Politics at this stage cannot be ignored, and is unlikely to disappear. There are three mechanisms that can support project management - technological support, training support, and administrative support, which also have technical and political aspects (Knutson et al 1991). Englund et al (1999) claimed that it is imperative for leaders to become skilled in the political process. Similarly, Bourne et al (2006) highlighted the critical need for project managers to fully understand the politics of projects. They must be able to not only make sense of the array of forces that stakeholders can influence, but also have the insight and capability to develop strategies to align stakeholder interests and the project vision in a manner that reduces the potential and strong risk represented by stakeholders and those they can influence. In the same way, Southam et al (2005) argued that project managers should have more than just technical delivery skills; they need to be good leaders, capable of influencing strategic direction, and skilled in managing the political dimensions of their projects. From another approach, the interpretation of the empirical material in the study by Cicmil (2006) signified the problematic nature of project implementation and the role of project managers as “implementers.” Project goals and plans are seen as frequently ambiguous, but their

ambiguities are not only a result of shortcomings on the side of decision-makers and planners, but also frequently an inevitable consequence of gaining necessary support for the project, and of changing preferences over time. Stakeholder engagement is a formal process of relationship management through which companies, industries, or projects engage with a set of stakeholders in an effort to align their mutual interests in order to reduce risk and advance the organisation's economic advantage.

Approaches of alignment

Miller (2002) introduced a way to measure project alignment with company goals and objectives, according to profitability, process improvement and employee satisfaction. Bessant et al OU T833 (1999) emphasized the subtlety of the relationship of project definition with broader change and underlying business objectives. Bessant et al OU T833 (1999) did this by measuring project profitability impact, in terms of cost savings, the ability of the project to improve business processes (time factor), and by measuring the professional satisfaction of employees working on the project. It is suggested that there is an obvious need to make a total organisational improvement, according to core competencies, cost competitiveness and integration and in regards to delivery schedules, budget and quality. Similarly, Oltra et al (2006) referred to cost and delivery, as being the most strongly emphasized, while customization (design and after-sales quality), when added to flexibility factorial analysis, were the least emphasized. Avisona et al (2004) argued that the application of concepts, such as a strategic fit between resources and opportunities, generic strategies of low cost versus differentiation versus focus and the strategic hierarchy of goals, strategies and tactics, may make the strategic process rigid. This has a negative rather than a positive impact on an organisation when followed specifically and pedantically.

Alternatively, Verzuh (2005) referred to four basic components that influence project management context and strategy implementation - processes, people, technology, and organisation. For technology as an influencing component, Berry et al (1998) noted that the importance given by senior management to technology within the organisation would have inherent implications for the management practice and culture of the company. This, in turn, would determine whether technological considerations implicitly drive business activities, or whether they are subsumed within corporate planning activities. In addition, in a study by Heide et al (2002), the focus was on different factors regarding the strategy implementation - information systems, learning, allocation of resources, formal organisational structure (including control systems), personnel management, political factors and organisational culture. Finally, Wernham (1985) found the availability of resources (of all kinds), top management support, perception of benefits, technical and organisational validity, history of past implementation attempts, size of the implementing unit, and the nature of the market

environment all influence implementation processes. Morris et al (2004) stated that for many enterprises, project success or failure has little to do with the way the project itself is conducted, or the quality of the staff, but much more importantly, the culture within the enterprise. In this case, project managers must realign the project strategy, the organisation and its culture, as well as the processes, tools and metrics of realizing projects, with a project's progress. Miles et al (2003) observed that the interactions between strategy and structure are highly complex. Structure tends to follow strategy, which in turn must be properly aligned for an organisation to be effective. Similarly, Drazin et al (1984) argued that strategy and structure realignment is a necessary precursor to strategy implementation. The new strategic objectives result from responses to a changing competitive environment. These changing strategies create administrative problems that require new or modified organisational designs to support the strategy effectively. Their study showed that there is a need to achieve realignment between strategic and design components, thus, facilitating implementation and improving performance. The findings in the study of Dillard et al (2007) provided several implications for managerial practice and application of organisation theories regarding the relationships between organisational structure and performance. Miller et al (2004), however, suggested three broad areas for examination. These were the conditions in which implementation occurs, the managerial activities involved with putting decisions into practice, and performance in the extent to which decisions' objectives are achieved. Successful implementation calls for detailed arrangement of activities, in accordance with the objectives of the project (Bessant et al OU T833 1999). This arrangement should be in line with an organisations broader objective. In this case, a link between all organisation objectives, and alignment to the main organisational strategy direction, is implicitly enforced. Similarly, Hambrick et al (1989) observed the following patterns of behaviour that occurred in cases of successful implementation - 1) obtaining broad-based inputs and participation at the formulation stage, 2) carefully and deliberately assessing the obstacles to implementation, 3) making early use of the full array of implementation levers and resource commitments, subunit policies and programs, structure, people, and rewards, 4) selling the strategy to everyone who matters (upwards, downwards, across, and outwards), 5) steady fine tuning, adjusting, and responding as events and trends arise. Finally, the research of Strahle, et al (1996) showed that there are often differences between participants in a project implementation. They also emphasize the need for input and cooperation from all constituencies involved.

Upper management

Many authors argued that top management is responsible for the strategic direction of the enterprise considering hundreds of projects and trying to support those that have potential for

significant strategic impact. Priem (1990) considered top management team composition, structure, and decision processes, as well as environmental dynamism, as antecedents to the consensus performance relationship. In his study, Priem (1990) found a curvilinear relationship between consensus and performance, since neither perfect disagreement (chaos) nor perfect agreement (groupthink) are desirable within most top management teams. Tinnirello (2001) noted the need for appropriate senior management levels to commit to a project. Similarly, Bourgeois (1980) suggested that strategy makers should be focused on reaching consensus concerning the means of strategy, rather than the results (goals), during strategy formulation. Hrebiniak et al (1982) in a study, involving two hundred and forty seven executive respondents within forty nine organisations, found that agreement among top managers is related to performance, even when controlling other variables that are potentially related to organisational performance. In addition, the results of Schwenk's et al (1993) experiment suggested that the overall effects of consensus on decision-making are positive. These results suggested that structuring top management teams to achieve consensus on objectives might improve their performance as well. Alternatively, Dess (1987) in his study of seventy four top management team respondents within nineteen organisations (using a correlation analysis), found that consensus on both company objectives and competitive methods is not directly related to organisational performance. From yet another point of view, Miles et al (2003) argued that top management is charged with the dual responsibility of aligning the organisation with its environment and of managing the internal interdependences thereby created. Its support has been depicted as a key factor in the successful innovational efforts in an organisation. Lastly, DeWoot et al (1978) argued that performance of an organisation is not explained by the number of innovations made, but by its capacity for combining technical progress with corporate strategy and efficient decision-making.

According to the results from various studies, the influence of upper-management teamwork on project success is vast. Any lack of upper-management cooperation will surely be reflected in the behaviour of project teams, and there is little chance that project managers alone can resolve the problems that arise. They must listen to recommendations from a retrospective analysis and take action on suggested improvements, applying them to subsequent projects that are initiated to resolve additional issues. The involvement of project managers, in strategic planning and portfolio management, is also required (Englund et al 1999). Anderson et al (2003) suggested that the awareness of other projects, and the conflicts (or synergies) that they represent, should be added as key issues in the domain environment. Mintzberg et al (1998) argued that strategy concerns both organisations and environment. In turn, an organisation uses strategy to deal with changing environments. In a study by Green (1995), of top management support that was based on two hundred and thirteen Research and

Development (R&D) projects within twenty-one major organisations, showed a significant relationship between independent informants' perceptions of top management support, project characteristics, and project performance. In this study, top management support was found to be directed towards certain types of projects. On the other hand, top management support's relationship to project outcomes was limited to project termination (figure 4.7.1). In contrast, even though top management does seem attuned to projects that have strategic implications, they do not pay attention to projects that deliver greater contributions to an organisation's goals.

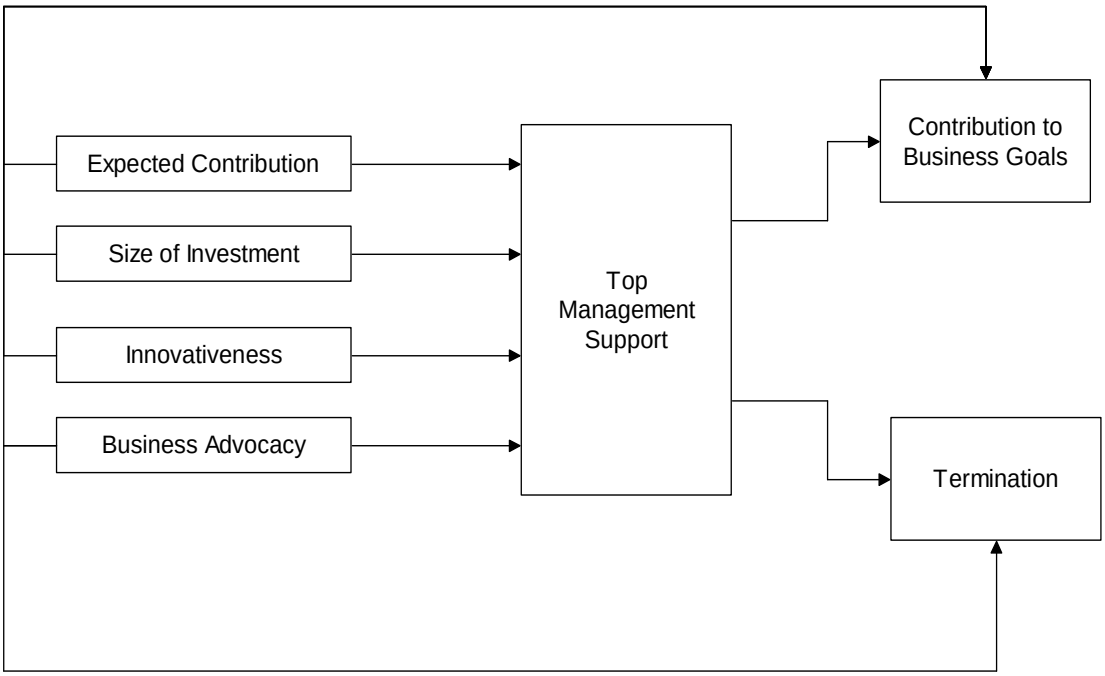

Figure 4.7.1 Top management support as a response to project implementation (Green 1995)

There is a requirement to develop an upper management team to oversee project selection. Experience indicates that the support of upper management is critical to project success (Englund et al 1999). Eve (2007) suggested that an organisation's upper management levels, including line and functional managers, should have senior development workshops that educate them on the benefits of applying good project management acting as projects' sponsors, and identifies their role in establishing and demonstrating the correct operating environment, attitudes and behaviors.

Failure factors

Projects are in danger of encountering serious problems if their objectives, general strategy, and technology are inadequately considered or poorly developed, or if their design is not

firmly managed in line with strategic plans (Dinsmore 2006). Martinelli et al (2005) stressed that most efforts do not consist of a single project to achieve desired results; rather they consist of multiple projects with activities and deliverables that are tightly linked. The intricate interdependencies and common business objectives are often left unmanaged. Grundy (2001) points out the reasons why many organisations' business projects are loosely connected to the bigger picture of the business strategy. One of these reasons is the lack of awareness of business strategy from all organisation layers - top management does not communicate its business strategy due to political reasons and project managers may not even see the importance of being aware of the detailed and specific content of the business strategy. He suggested that, with companies facing increasingly dynamic business conditions, project managers must be increasingly business aware and have more than just technical delivery skills. They need to be good leaders and be capable of recognising and managing the political dimensions of a project. Hussey (1998) identified the major barriers of effective implementation - a vision that could not be implemented because it was not translated into operational terms, strategy that is not linked to departmental and individual goals (incentives are tied to annual financial performance instead of to long-range strategy and resource allocation). Rhodes OU T833 (1999) acknowledged the importance, and the role, of organisational politics in project's implementation. The political dimension is critical to overcoming many of the obstacles that stands in the path of implementation. Organisational politicised tactics are dealing with crucial management issues, such as outright resistance with pressures for delay or modifications. Guth et al (1986) argued that middle managers, who believe that their self-interest is being compromised due to political reasons, might redirect a strategy, delay or reduce the quality of a project's implementation, or even totally sabotage the strategy. In addition, strategy itself may not be clear and may not be fully integrated, mutually consistent or worked through. Finally, it is rather hard to link one thing (a project) to another thing (a business strategy) if the latter only half exists. Literature claims that performance might be improved through a better fit between organisational processes. Cicmil (1997) reported the conclusions of the researches into principal sources of project failures at De Montfort University Business School, with international student cohorts encompassing various levels of management and professions across a wide range of industrial sectors, from the UK, and fourteen other countries. The available empirical evidence of managerial concerns warns us that the level of project failures is dangerously high. Research is reflected in the following categorisation of problem areas, to be addressed in order of priority - poor understanding and identification of the client/customer/end-user needs. Too often, managers have no sense of priority in their implementation activities. They need to understand which strategies are critical for the future of the organisation and which are more mundane (Noble 1999). In addition, Thomson states the differentiation between small and large-scale

organisations. In small companies, strategy is owner managed and comes from the owner's experiences, personal observations and assessments. Large companies, however, tend to develop their strategic plans more formally and in deeper detail. The excessive hierarchical bureaucracy and control make it difficult to achieve an appropriate balance between excessive control and insufficient control in a multi-project context. In addition, focus on an inappropriate level of detail in large integrated plans, or networks, is difficult to formulate and has a tendency to become cumbersome and excessively complex (Lycett et al 2004). Noble (1999) suggests that to cut through bureaucracy and to speed up implementation, managers should be encouraged to use informal networks whenever possible. Managers hold these personal connections in other areas of their organisations. Through such channels, resources can be pooled more effectively, decisions made more rapidly, and the implementation process generally expedited. The essential members of an implementation team should be well connected, across functions, within the organisation.

Hussey (1998) observed four areas of weakness in organisations, which contribute to poor strategic performance. These are failure to analyse the situation before strategic decisions are made, failure to implement strategic decisions, failure to think through the implications of a new strategy, problems with the process of planning, itself, and incomplete understanding of many of the concepts by those that are supposed to apply them. A degree of planning, perceptive organisational analysis and sensitivity to human issues are all constituents of successful decision implementation. Such capabilities should be present within the management team, if not within individual managers (Miller et al 2004). In opposition, Miller et al (2004) argued that a range of factors contribute to success and planning. Overall decision achievement rests on versatile and flexible responses at both managerial and organisational levels, rather than rigid and rule-bound directives. Planning and learning can facilitate successful implementation. Surprisingly, Srivannaboon (2004) found a case where the alignment did not automatically lead to the success of the project.

Knutson et al (2001) stated that projects provide the means for bridging in regards to realizable changes in the future of the organisation. Inadequate specification of project requirements and project constraints are, consequently, setting unrealistic project goals altogether. This includes organisational behaviour factors, such as structure, functions, performance, and associated behaviour of groups and individuals. Kaplan et al (2001) observed functional silos stimulate departmental processes and become a major barrier to strategy implementation, as most organisations have great difficulty communicating and coordinating across these functions. They are bounded rationality in the process of project planning and project implementation, i.e. the lack of appreciation of dynamics and change.

Poor monitoring and control during the project implementation phase results in the measurement and assessment of the project's progress against the plan. Daft et al (1984) proposed two models. One model links control systems to business level strategy implementation and the other defines primary and secondary roles for management control system components in the management control process. Nilsson et all (1999), in a study related to control systems designed and used at the management and operational levels for the implementation of business strategy, found the intention to reduce the uncertainty level arising from the differentiation strategy.

According to Crawford et al (2006), project categorization is a critical factor for aligning capability with the strategic intents. Organisations need to categorize projects to assign priority within their investment portfolio, track the efficacy of their investment in projects and to create strategic visibility. The design, or redesign, of a system would start with the identification of the purposes of the system, starting at a strategic level and working down to an operational level, aligning capability with the strategic intents. Eppinger (2003) argued that many subsystems must be integrated to achieve an overall system solution. The next step would be to select attributes to support the intended uses. To balance comparability, visibility, and control, the attributes should be chosen by working with focus groups of users, and by validating the model with said users.

Cooper's research, in 1993, found that commercial success was evident in only one out of every four projects. In 1988, Bull Corporation found that 75% of projects missed deadlines and, in the same year, Rand Corporation found that 88% costs overran. Only one out of every three projects were profitable. In 1996, Shenhar found that there was an overrun in 85% of projects (60% Business and 70% Technology projects). Standish Group's research, in 2000, revealed that 28% of projects were successful. In 2003, IT projects wasted eighty two Billion dollars out of three hundred and eighty two billion dollars. A project can be perceived as unsuccessful by the project team and upper management. A project's failure, or poor performance, often originated in poor management, particularly at the front-end during strategy formulation, rather than poor downstream execution (Anderson et al 2003). One of the major reasons for a project's failure is related to the window of opportunities. Watkins (2003) noted that organisations could end up misaligned, in many ways. He identified the following factors - skills and strategy, systems and strategy, and structure and systems misalignment. The success of a project, that makes it to completion, is not judged in terms of completion, but in terms of its contributions to business goals, such as profitability, cost reduction, or market share. Consequently, the hypotheses about project contributions to

business goals were developed and tested while controlling the effects of project terminations on such outcomes (Green 1995).

Project management elements may impact business strategy based on the operating conditions of reviewed projects (Srivannaboon 2004). Martinsuo et al (2006) referred to two separate dependent variables, realization of strategy and perceived efficiency, as having strong inter-correlations between project management context elements. Kerzner (2001) found that, during the 1990's, failures were largely attributed to poor morale, poor motivation, poor human relations, poor productivity, no employee commitment, no functional commitment, delays in problem resolution, too many unresolved policy issues and conflicting priorities between executives, line managers, and project managers. With the focus on project context elements, priorities (schedule-driven and quality-driven) that are set for an individual project management element, by the business strategy, are done in order for its specific competitive attribute to be accomplished. This focus helps the business strategy and its competitive attribute configure its project management elements (Srivannaboon 2005). Dinsmore et al (2006) suggested the examination of key project management practices should be carried out in order to assess whether they contribute to a competitive advantage. Kaplan et al (2001) argued that difficulty in implementation was the problem (with out-of-pace supported tools), while strategies were changed due to new business's values directions. Powell et al (2006) suggested that problem definition, project definition and decision activities are positioned at the beginning of the project management processes. Decisions made during problem definition, problem validation, concept definition, evaluation, validation, and program management planning are early decisions essential to initiating any project. These activities comprise a large part of the decision making process, and can end up being the biggest mistakes if decisions are made poorly, made too late or not made at all. Dinsmore et al (2006) suggests enabling and facilitating all aspects of the project, especially in the removal of business-as-usual organisational roadblocks. Noble (1999) supported the essential aspect of any successful cross-functional process as being the development of partnerships. Internal partnerships can be effective in reducing functional conflict, although, building them becomes more challenging. Knutson et al (2001) argued that today various functional areas must come together and reformulate each time in order to accomplish a strategic goal. Eve (2007) argued that synchronized development of ‘‘key" elements of any project management system correctly maximizes a company's project performance and investments. These ‘‘key elements" are strategic development, methodology and tools, mentoring (coaching) intervention, management development, training and competence (career).

Success factors

Project performance, success and mentoring are especially important since each is connected to all factors of success. Project success will, therefore, be considered a multivariate in the attempt to approach a global view of success (Larson et al 1989). Green (1995) argued that the expected contribution of the project to the organisation, and the perceived size of the investment in the project, clearly links and relates to the payoffs and financial risks inherent in the project. Rhodes OU T833 (1999) studied the formal model of a financial appraisal of new projects. Budget control and allocation is often undertaken through a highly formalized and detailed process of scrutiny. This establishes the financial implications by relating them with financial yardsticks in order to determine project's acceptability. Two other characteristics, the innovativeness of the project and the source of suggestion for initiating the project, also may signal information about the strategic value of a project. The end advantage is that projects can be completed and that more final features can be achieved if the project's management monitors the true cost performance from the beginning of the project (Fleming et al 1998). In addition, Shenhar (2002) stated that success measures are grouped into three dimensions, 1) meeting design goals, 2) benefits to customers, and 3) commercial success and potential. Rhodes OU T833 (1999) noted that there is an important notion, and link, between internal and external environment. He also stated that there is a link between various functional areas, within an organisation, and efficiency improvement through local success of introducing project-based management. Earlier studies suggest, and report, some individual and organisational background variables relevant to the adoption of organisational innovations. The abilities of decision-makers to implement innovations at lower levels in the organisation are crucial to organisational success. It was found, in the research of Barton et al (1988), that employees, whose characteristics incline them to adopt innovation, would do so without management support or urging if it is simply made available. Employees with little initiative will await a managerial directive before adopting anything new. In the course of implementing the innovation, some perceptions, attributions, and inferences shifted over time, but initial major differences associated with organisational position and commitment to the innovation, did not change (Sproull et al 1986). Risk and complexity are characteristics of innovations that can lead to resistance within an organisation. A communication channel is a structural characteristic that can be used by decision-makers to overcome this resistance. The interaction of this factor can determine the degree of successful innovation implementation within organisations (Fidler et al 1984). Grinyer et al (1978), by using a correlation analysis in a research involving ninety-one executive respondents from twenty-one organisations, found that higher financial performance is associated with qualitative information processes. This is done by using channels of information and communicating with senior management. For example, organisational complexity and size have been considered against significant background variables. Project based organisations use a trade-off pattern in their operations

strategy, prioritizing flexibility over cost, quality and delivery priorities. They can be grouped according to their operations strategy pattern and are related to organisational structure variables, to a system scope level and to project size (Oltra et al 2005). In this case, business innovators are those that are using a more complex pattern by emphasizing all dimensions of quality (jointly with flexibility), placing delivery second (Oltra et al 2006). According to the complexity theorists, human organisations are also complex adaptive systems. Such systems instinctively know how to act purposefully and strategically (Pietersen 2002). Larson et al (1989) suggests that there are five variables, which represent factors external, or predetermined, for the specific project effort that must be considered. These contextual variables include project complexity, novelty of technology, clarity of objectives, priority, and resource availability.

According to Fricke et al (2000), key variables that are mentioned as critical major factors, contributing to the success of project implementation, are clearly defined goals, top management support, a competent project manager, competent project team members, sufficient resources, experienced staff, ownership, customized management, adequate communication channels, control mechanisms, feedback capabilities, and responsiveness to client's needs. The strategic projects vary in size, importance, required skills, and urgency, are in various stages of completion, and are using the same pool of resources.Asrilhant et al (2005), from a study on the UK upstream oil and gas sector, identified the most significant factors measured via managerial perceptions of success, along four dimensions (financial success, strategic success, successful completion and successful management). The analysis of the data indicated that internal business elements were the key drivers of success, but management paid considerable attention to only one half of these elements. Some key elements, such as flexibility, interdependency, and learning and innovative routines appear to be broadly neglected. Scholey (2005) suggested on deciding how internal processes will support the execution of strategies that are chosen and to implement the skills/capabilities and employee programs that are required to achieve strategy. From another point of view, there were internal content factors - isolated and portfolio characteristics, including feasibility, timescale, durability, flexibility and interdependency - that contributes to the successful implementation. Firstly, the ‘soft internal elements’ factor (including managerial interaction, resources deployment and learning and innovative routines), were contributed as well. Overall then, internal business factors dominated the strategic project's success. Secondly, both financial and non-financial factors appear to contribute to the strategic project's financial success. On the other hand, external environment factors appear to contribute little to successful project management. It is noticeable that the learning and innovative routines elements are not addressed consistently. Finally, there appears to be a gap between the

elements to which managers pay considerable attention and those elements that are believed to explain a strategic project's success. Based on executive interviews and middle manager surveys, Noble (1999) created a general model of the important stages in strategy implementation. The focus of this model was on cross-functional issues and dynamics. The model was organized around four major stages of the implementation effort, which are pre-implementation, organizing the effort, the ongoing management of the process and maximizing cross-functional performance. By understanding the challenges and pitfalls inherent at each stage, top managers can improve the effectiveness of the implementation processes. Of coarse there would be various other studies which would measure success of projects by using different approaches and measures.

Communication and consensus

Albert Einstein (1879–1955) reputedly said, 'The major problem in communication is the illusion that it has occurred'. The translation of strategy into actions means communicating and monitoring implementation in terms that everyone can understand, from middle management to line workers (Alio 2005). Communication is recognized as a key element of project management, and one that is often a weak area in terms of both personal skills and organisational structures. The intra-organisational communication among top and functional area managers is perhaps the most significant informal process within an organisation that determines the success, or failure, of the organisation's implementation efforts. Communication, then, becomes a vital part of strategy implementation in that parties, who are linked through frequent communication, are involved in a process through which they come to converge on commonly shared meanings, attitudes, and beliefs. Thus, consensus of fundamental strategies may differ across levels, making it imperative that researchers examine this phenomenon in more detail. If members of the organisation are not aware of the same information, or if information must pass through several layers, a lower level of consensus may result (Rapert et al 2002). Southam et al (2005) argued that effective communication is essential for people to know what they should be aligned with and how. A carefully constructed communication strategy, using the principles of redundancy, is likely to be useful, especially if the attitudes about current processes are generally favourable and the change conflicts in important ways with significant cultural elements. A well planned communications process can be most helpful in easing the way to a more effective process (Klein 1996). Dess et al (1987) suggested an integrative model of the antecedents and consequences of consensus in strategy formulation. Thus, there are two primary perspectives on consensus. First is the strategic consensus as an outcome of a decision process and second, the process of building consensus.

The broader involvement also improves the communication process. In addition, enhancement of communication improves the quality of the solution delivered, not only of the instant project, but also on other related projects that may benefit from the information shared (Grant et al 2006). Woolridge et al (1989) considered the two dimensions of consensus - shared understanding and commitment - and suggested that the relationship between these two constructs is much more complex than previously hypothesized, as the strategic process affects consensus. Floyd's et al (1992) approach to implementation focused on the level of strategic understanding and commitment shared by managers within the organisation. The latter study was based on strategic consensus and differences in how managers perceive organisational priorities. From the findings, a technique of consensus mapping was suggested for identifying and closing implementation gaps within an organisation. On the other hand, Woolridge et al (1989), in their study, found inconsistencies in the exploration of the link between consensus in the top management and organisational strategic performance.

The most effective risk avoidance strategy is to ensure communication throughout the project team and organisation. Too often, project managers fail to keep all of the necessary people "in the loop" about the project (Cervone 2006). Belout (1998) argued that the more structure adopted in projects (to be 'project team' oriented), the more the relation among the independent variable and the dependent variable will be positively affected (intervening effect).

The triple constraints

Aubry et al (2007) argued that organisational project management is a new sphere of management where dynamic structures, in the organisational context, are articulated as a means to implement corporate objectives, through projects, in order to maximize value. Factors critical to organisational project success includes a means of aligning the whole organisation behind the right projects and programs. The development of an integrated business case is achieved with an intension to apply direction hierarchy, driving with a plan solution (according to project management strategy) and key activities, such as initiation, requirements and deliverable scope and WBS. Program's objectives and time plans are determined according to the benefits and costs of projects. The output is a program operational direction, aligned and consistent with prioritization and availability of resources, waiting for business approval (Morris 2004). On the other hand, Dinsmore et al (2006) stated that managing projects requires more than focusing on the triangle of time, cost, and quality. The criterion for project success expands to include scope and health, safety, and environmental (HSE) issues. Dillard et al (2007) stated that underscored complex interactions, between organisational design factors, suggest fundamental tension and decision tradeoffs

between important performance measures, such as project cost, schedule, and quality/risk. Knutson et al (2001) argued that there are three portfolio drivers named also as market imperatives, which roughly correspond to the classic triumvirate of time, cost and quality. The three portfolio drivers are time to market, working smarter (and cheaper) and the stockholder's response ability. Project management researchers have explored the factors that influence the emphasis given to the cost, time and quality-related criteria - these make up the iron/golden triangle (Kerzner 1989). The four competitive priorities (cost, quality, delivery and flexibility) have also been referred to as goals and, consequently, as performance areas (Oltra et al 2006). Projects usually involve attention to a variety of human, budgetary and technical variables. Although many definitions exist, most researchers agree that projects generally possess the following characteristics - limited budget, date for completion, quality standards, and a series of complex and interrelated activities (Belout 1998). Shenhar (2005) diversified the traditional approach, where projects are focused on meeting time and budget and project management, is a process of activities that need to be managed to deliver the triple constraint (time, cost and requirements), with a new approach, where projects are business related initiatives and project management is an integrative leadership function with a responsibility to achieve the business results. According to Oltra's et al (2005) study, there are two priorities in operational strategy - cost and delivery. These are the most strongly emphasized, while customisation, which is related to design and after-sales quality, is the least emphasized.

One key factor of successful implementation is time, which empirically shows that there is a match between the strategy to reduce product development cycle time and the very complexity of the project. On the other hand, complex projects demand more participative management and more involvement (Chebat 1999). The research by Miller et al (2004) found no support for either alternative and that there is no significant relationship between the time it takes to put a decision into effect and whether or not it is ultimately successful. Swift or slow decisions can both work. Bryde's et al (2006) study on customer, time, cost, quality and other stakeholder focuses, revealed that there was no link between the level of focus on the iron/golden triangle (time, cost, quality) and the existence of a TQM program. It was established, however, that there is a link in respect to customer-focused practices.

From another approach, based on investments made in project implementation, IT Projects are often funded solely on their perceived merits or their project owner's political clout (Miller 2002). Oltra et al (2006), in their study, found an emphasis in cost priority without differentiating the importance given to production quality, delivery and customization

priorities. The industry distribution analysis performed showed that cost strategy is the most frequent in almost all industries.

Quality management originates in the manufacturing sector. Project management, in itself, is an ongoing, repetitive operation to which at least some of the quality management practices could apply. Any convergence of thought between project management and quality management has been focused on using project management to implement a total quality management culture (Orwig 2000). A chasm usually exists between business objectives and project management activities. Projects, therefore, may be “on target”, with respect to time, cost and quality, but fail to achieve the business results anticipated, such as an increased market share or increased worker productivity (Martinelli et al 2005). There are a number of services where organisations stress the importance of quality as a strategic objective. Paradoxical results, such as quality, do not enhance satisfaction in the case of professional services organisations.

The link between Total Quality Management (TQM) and project management is usually analysed from two perspectives. First is the use of project management as the most effective methodology for the successful introduction of a (TQM) programme. Second are individual quality improvement projects as the key vehicles for ensuring ongoing continuous improvement within a (TQM) programme (Bryde 1997). TQM usually includes the following concepts - continuous improvement, employee empowerment, benchmarking, “just-in-time” and customer focus. TQM, as a quality philosophy, suggests that good management will continually improve processes, focus intensely on customer's needs and accomplish the above by extensive use of cross-functional teams and feedback loops throughout the organisation. It is the value of the service, which is contributing to customers' satisfaction, which in turn tends to consider quality as granted because all professional services are supposed to offer high quality. A link between TQM, customer-focus, and organisational performance has been made in relation to the management of operations (Bryde et al 2006). Process improvements, in the context of project management, are linked and any changes reflect on each other.

According to BS ISO 10006 (1995), quality principles in project management are defined in five fundamental quality principles - 1) Maximizing the satisfaction of the customer, and other stakeholder needs, is paramount, 2) All work in a project is carried out as a set of planned and interlinked processes, 3) Quality has to be built into both products and processes 4) Management is responsible for creating an environment for quality, and 5) Management is responsible for continuous improvement. Jung et al (2007) proposed the well-known approach to Six Sigma projects, the define-measure-analyse-improve-control (DMAIC)

methodology in solving a specific problem, as it is valuable in that key features of process output variables are analysed in a systematic way. Orwig (2000) argued that customer satisfaction is the crucial requirement for long-term organisational success and that achieving consistent satisfaction requires concentration on customers' needs, from the entire organisation. If customer satisfaction is defined as a ratio of expectations to deliverables, it then becomes obvious that project teams must address both areas. It is important to sustain the focus on the customer throughout the project. In addition, it is necessary to have open, clear and consistent communications in order to lay the foundation for strong teamwork. Orwig (2000) stated that the extent to which project managers develop teamwork impacts the achievement of customer satisfaction and continuous improvement. Chebat (1999) suggested that the four industry key phrases “focus on customer satisfaction”, “work-front first”, “team work” and “perfection” originated in Japan and have been integrated into project management and are predominant objectives in project work (PMCC 2001). Prior to the TQM programme, the perception survey of Bryde (1997) showed a link between quality of service and poor project management. Discrepancies were identified between initial customer expectations and final customer perceptions. Two quotes from customers illustrate typical problem areas - “A tendency for late project delivery without project awareness” and “A lack of organisation of projects”. Project quality is affected by time, cost and project scope factors, in contradiction to triple constraints: time, cost and the quality approach in project implementation, scope and deliverables (Vassilopoulos 2003). Where these are left fluid, or taken-for-granted, there is carte blanche for organisational confusion (Grundy 1998).

Human and culture factors

From another point of view, the connection to strategy has been largely emphasized as one central feature of (HRM) Human Resources Management, especially when this is compared to a more traditional approach, personnel administration. This has made several authors adapt the findings of their studies of strategy from the viewpoint of HRM. These may be unique to an individual, or they may entail common personality traits among members of any particular organisation's department. Identifying those people, who may have subversive reactions early in the implementation process, is crucial (Noble 1999). Luoma (1999) describes the common feature in many papers, which is linking strategy and HRM with the tendency to create one framework that is then applied to all people-related activities that companies perform. This contains an underlying assumption that all HR activities (recruitment, development, etc.) share the same basic nature and play a similar kind of role in relation to strategic management. In line with the previous arguments, Rhodes OU T833 (1999) highlighted the key role of human resources in the implementation process. Pietersen (2002) noted that

academic research suggests, and shows, that employee participation should be maximised in order to lead and manage an organisational change.

Organisational culture affects the operation of a company in many different ways. As such, it is becoming increasingly clear that it can, and does, play a crucial role in many areas of managing an organisation (Stock et al 2001). Organisational culture is the set of values, norms, beliefs, and attitudes that help to energize and motivate employees and control their behaviour. A company's founder, and top managers, help determine which kinds of values emerge in an organisation and, as such, they should try to build a strong and adaptive culture to help increase performance over time (Hill et al 2001). Dalgleish (2001) raised the point that enterprises need to address the barrier of culture change in relation to the size of the quantum leap required for emergent strategic advantage. There is a need for a strategy that explicitly addresses cultural change, the establishment of a project integration infrastructure, and new and improved business processes. This should be curtailed by corporate culture and be focused on creating micro cultures around the business areas that will be embarked on and complete those breakthrough projects. In turn, this contributes to enterprise-wide learning, education, communication and culture change. Kaplan et al (2001) argued that employees who already have a clear understanding of the existing strategy may innovate and find new unexpected ways to achieve high level strategic objectives or identify variations in the strategy that open up new growth opportunities. Previous studies of emergency projects have shown that initial agreement that a project is “urgent” may decline with time, as the costs of uneconomic use of resources become apparent. Studies of commercial and public projects have demonstrated the value of deciding the scope and an execution strategy before commitment to a project, and then proceeding deliberately through stages or “gates” of decisions to review the scope, plan, risks, and budget and adjust these to any changes in objectives, new opportunities or problems.

Organisations become effective when they create, maintain and, sometimes, change climates and cultures to emphasize the achievement of multiple priorities (Thomson 1998). The findings in the survey by Wilson (2003), performed in the Triad countries (North America, Japan, and Europe), were that there is a growing emphasis on organisation and culture as critical ingredients in the execution of strategy. Watkins (2003) observed that because cultural habits and norms operate powerfully to reinforce the status quo, it is vital to diagnose problems in the existing culture and to figure out how to begin to address them. This indicates a broad awareness of the external and internal challenges of today’s business environment. Culture is, in effect, the internal equivalent of the customer orientation in the corporation’s outward facing posture. It represents recognition that the values, motivations, and behavior of

the organisation’s members are critical determinants of corporate performance and of the success or failure in implementing strategy. This lack of attention to strategy implementation, by both planning teams and researchers, is critical, particularly since much of the weakness in strategic management can be attributed to failures in the implementation process, rather than in the development of strategy itself (Siciliano 2002).

Resource, action and intent strategy objects carry information about the role and purpose of each object. The interdependencies of these strategy-building blocks, within organisations, enable the construction of a strategic architecture (Littler et al 2000). Any effort at leading change, in how an organisation links projects to strategy, is bound to meet resistance. The concept receives almost unanimous intellectual support. Implementing it into the heart and soul of everyone in an organisation is another story. It goes against the cultural norms in many organisations and conjures up all kinds of resistance if the values it espouses are not the norm within that business. The path is full of pitfalls, especially if information is presented carelessly or perceived as final when it is always a work-in-process (Englund et al 1999). Employees cannot accept or implement top management's vision if they are unaware of it. So, as Thomson (1998) suggested, frequently formal and informal channels of communication are needed with all employees to introduce the focused strategic mission. There is one key communication skill that a project manager needs to develop and use - “listening” (Knutson et al 1991). Core competence is communication, involvement, and a deep commitment to working across organisational boundaries (Olavson Thomas 1999). The initial findings from the research study by Rapert et al (2002), validates the importance of examining both communications and strategic consensus, in greater detail, to more fully understand their roles in the strategic implementation process.

Commitment, trust, and voluntary cooperation are not merely attitudes or behaviours. They are intangible capital. When people have trust, they have heightened confidence in one another's intentions and actions. When they have commitment, they are even willing to override personal self-interest in the interests of the company (Chan et al 2005). This means that the personnel factor is significantly affecting the project's success (Belout 1998). In the best companies, senior management, in both business and IT, displayed significant vision, provided strategic directions, and were committed to rigorous planning and execution. All across these organisations, including the relationship between departments and divisions, there was a feeling of trust and of team orientation. (HR) human resources were emphasized, and, in the IT organisation, motivation and training were considered to be extremely important (Luftman et al 1996). Similarly, the latest research of Maytorena et al (2007) identified that education and training was revealed as a critical factor in project risk

management. Finally, Willcocks et al (1997), based on over ten years of research at the Oxford Institute of Information Management, shows the importance, not of technology per se, but of people and processes, building for the future, through learning and development.

Dinsmore et al (2005) additionally noted that since the word “alignment” implies being lined up and heading in the same direction, and that an effective management approach needs to be found to make an organisation converge toward completing their business strategy. Thus, management style and corporate culture come into play. Alignment of players, in support of a common business strategy, is a key factor towards achieving success in all company settings. The aspect of Srivannaboon’s (2004) research was related to the detailed alignment process, including strategic planning, project portfolio management, and project life cycle management. Projects are first selected and then put into the project portfolio in order to support the implementation of the business strategy. Then, during project execution, alignment with the business strategy is monitored and information is fed back to business leaders to allow for the adaptation of the business strategy. Knutson et al (2001) argued that the identification of information required from a portfolio, or program, and project management context is a core competency if it turns to knowledge and provides the direction of decisions. Englund (2000) worked with teams to implement the linking process, invoke creative involvement from team members, discipline, dialogue, and work plans that support organisational goals. In addition, Lorange (1998) found that the latest trends indicate that human resources are becoming the key resource on which to focus the implementation of an organisation's business strategy. The degree to which sufficient resources have been made available to complete the project is likely to affect success. Projects with inadequate resources are likely to be doomed to begin with, regardless of the project structure used (Larson et al 1989). In addition, Belout (1998) pointed out that a large organisational literature revealed that the success in organisations could never be reached without qualified and motivated personnel. Englund’s (1999) experience was that teams get much better results by tapping their collective wisdom about the merits of each project, based upon tangible assessments against strategic goals. Artto et al (2005) argued that project business is the part of business that relates directly, or indirectly, to projects, with the purpose of achieving the objectives of an organisation or several organisations. In addition, strategy is an important issue, as project business relates strongly to both and its objectives. Lorange (1998) suggested that managers should utilize their organisation's key strategic resources (people talents), in a way that allows them to create new business through internally generated growth. Strategy means choice and key choices focus on how to deploy human resources to better achieve a strong overall strategic portfolio of programs and projects. Rhodes OU T833 (1999) argued that there are two poles in practice. The minimalist approach is project centered and pays attention to the

low level priority of human issues and tends to be confined to project domination, dealing with immediately essential training and other actions. The maximalist approach explicitly sets out to establish the full range of people and issues, long term, which may become involved with the project's implementation.

Managers are, in many cases, only beginning to learn how to process change issues effectively and to turn them into projects (Grundy 1998). As long as strategy and change management are kept in different boxes, there will be a costly disconnection between them. The gap can be closed by thinking of strategy as change management (Manning 2001). Mintzberg et al (1998) argued that because of today's world of high velocity change, there is an oxymoron in change management based on the shaky assumption that there is an orderly thinking and implementation process, which can objectively plot a course of action. On the other hand, successful change flows from learning, growth, and development. Managers across all functional areas should have a common understanding of, and commitment to, enterprise strategic intentions. Each organisational unit should understand how current and future activities, in all functional areas, support the enterprise's strategic intentions (Benson et al 2004). In contrast to the previous argument, Grinyer et al (1978) found no evidence to support the correlation between the common perception of objectives and organisational performance.

According to the survey by Martinsuo et al (2006), project managers need to be concerned with business interests beyond the single-project level. Hrebiniak (2006) undertook an empirical study of implementation issues in which data was collected from four hundred and forty three managers that were involved in strategy execution in relation to project management. He found one basic problem is that managers know more about strategy formulation than implementation. They've been trained to plan, not execute project plans. The top five obstacles to strategy implementation that resulted from the two surveys was 1) an inability to manage change effectively and overcome resistance to change, 2) a poor or vague strategy, not having guidelines or a model to guide strategy implementation efforts, 3) poor or inadequate information sharing among the individuals and units that were responsible for strategy execution, 4) trying to execute a strategy that conflicts with the existing power structure and 5) an unclear responsibility or accountability for implementation decisions or actions. One of the most vocal complaints of project managers is that projects appear almost randomly. The projects do not seem to be linked to a coherent strategy, and people are unaware of the total number and scope of projects. As a result, people feel they are working at cross-purposes, on too many unneeded projects, and on too many projects in general. Selecting projects for their strategic emphasis helps resolve such feelings and is a corner

anchor in putting together the pieces of a puzzle that create an environment for successful projects (Englund et al 1999). The results from the study by Dillard et al (2007) reinforces the contingency theory and suggests particular characteristics of different project environments that make one form relatively, more or less, appropriately than another. Project managers get the new role of "co-designer of business" and project strategy and strategic control is vital due to an increasingly turbulent business environment, impact of changes, shortening of the duration of project implementation, and "just-before-time" requirement - its implementation is easiest by project management (Hauc et al 2000). Maylor (2001) argued that the lack of a clear strategy is a root cause of failure and more than 80% of all problems at the project level are caused by failures, at board level, to provide clear policy and priorities. According to the general observations of Laffan (1983), it was found that the use of a "policy network" concept draws attention to the relationships that those in the system must engage in to achieve their implementation goals.

One key issue appears to be a mismatch between needs and expectations. That is, project managers do not always use the right arguments to convince senior management. Thus, disconnections occur between the project managers, who tactically sell the features and attributes of specific tools and techniques for project success to management when executives want results and benefits at the business level (Thomas et al 2002). In the research by Anderson et al (2003), several interviewees commented that strategies do not always address all the necessary elements and contingent factors and were not always derived in a project mode. On the other hand, the majority of all development projects fail to meet their time and cost targets, with the overrun typically between 40% and 200% (Lyneis 2003). It is not difficult to argue that many of the problems experienced on projects, during the implementation stage, stems directly from ill-considered requirements proposed in the conceptual period of the project or inappropriate allocation of human resources (Knutson et al 2001). In respect to human resources allocation, Hölttä-Otto et al (2006) found that each functional area requires a similar amount of resources, in comparison to other departments, from project to project. Further, attempting to compare resource allocations in multiple functions across companies in very different industries, shows, not surprisingly, significant variation. There are, nonetheless, some similarities in a few general functional areas that require the same fraction of resources, independent of the company.

According to Longman (2004), there are two categories of human resources for project team development. Those that are just not suited to the challenges of project management, do not thrive in the inherently ambiguous and give-and-take environment of projects. Those who blossom in it love the challenge of working toward a goal and being part of a project team.

The latter are those that are motivated by the opportunity to learn. On the other hand, Cicmil's (2006) findings call for a closer link between the practical knowledge and the learning processes that individuals go through in their development as project managers. In the study by Thomas et al (2002), none of the participants initially described project management as a philosophy, and no one referred to specific project management methodologies. In general, participants had a fairly consistent, shared, and basic understanding of project management. The reality observed during a recent study by Maylor (2001), of new product development managers, none of the forty-three participants had any training in the area of project management. Luoma (1999) argues that a common view of the role of (HRD) Human resources Development, in relation to strategy, is to see it as a means to assess and address skill deficiencies in an organisation. In practice, this means that the work that is being done in the organisation has been divided into certain roles and that a competence profile has been identified, whether explicitly or implicitly, for each of the roles. The company can pursue its strategy if the people in the organisation live up to their roles and possess the appropriate competencies. The abilities required can alter if a change in the environment, or in the resources of the company, renders the ones previously defined obsolete. By this approach, (HRD) strategy translates into development needs within the organisation, and then development needs act as triggers for HRD. In turn, HRD, utilizing the opportunities available, acts as a catalyst for mental growth in the organisation and, finally, interventions facilitate the process of strategic planning.

The interpersonal skills of a project team have influencing variables, such as effective communication skills, commitment, leadership, motivation, negotiation and conflict management (PMI 2004). The need is to develop consistent incentives for all members of an implementation team. A leading cause of internal failure for such efforts is individuals with differing incentives and motivations. It is clear that the mindsets, beliefs, and goals of managers vary largely based on the functional area in which they reside. Engineers, marketing managers, financial analysts, logistics managers, and production supervisors are often fundamentally different, as individuals, and in the objectives and reward systems under which they operate (Noble 1999). In addition, because goals may change during the implementation process, incentives may also need to change. Changes in the competitive environment necessitate adjustments to the organisational structure. If the organisation delays in making this realignment, they may exhibit poor performance and be at a serious competitive disadvantage (Noble 1999). The success of a project management process depends on an organisation's explicit belief that how projects are managed is just as important as what they achieve (Longman et al 2004).

Englund (1999) suggested that organisations begin by developing councils to work with project managers and implement strategy. In addition, Englund (1999) suggested engaging people in extensive analysis and debate to get agreement on the major characteristics for each project. The commitment must be to fully fund and staff projects selected for the in-plan. It is believed it is important to have a process person involved, at some level, and time to guide this activity. It is also not a means to create consistency within an organisation, depending on the strategy and criteria that a team selects, the outcome is a unique portfolio of projects that reflects the ingenuity, capabilities, and commitment of the people involved. The same people who develop the strategic plan are also the ones who best can update it periodically, perhaps quarterly or as changes occur. Tools are used, such as an on-line shared database, to gather data directly from project managers about the resources needed for each project. This system can be used both to do research when developing the plan and to update it. The plan should be viewed as a "living document" that accurately reflects current realities. Milosevic et al (2007) also suggests that there are some crucial factors influencing an organisation's mission statement. These factors lead to the perception of the company's purpose form all human resources allocated in a project.

A critical factor influencing program management is that the program team structure must enable fundamental elements of successful teamwork in order to be capable to support the highly integrated nature of a program of interdependent projects' deliverables (Milosevic et al 2007). Bursic (1992), in her study, concludes that American manufacturers have recently given a lot of consideration to the idea that individuals working together in groups and teams are often more productive than individuals working alone. The two fundamental resources of any business, whatever size and nature, are people and money. Of these two, the people resource is the most complex. People are all different. They have different physical characteristics, different temperaments, different educational levels, different personal values, different skills, and different abilities. A company, at any one time, has a requirement, not for people in general, but for specific people who are able to fulfil the function for which they are needed. It is also important to consider the degree of environmental turbulence and its impact from an HR point of view. The activities of a HRM are management development, manpower planning, succession planning, climate and culture, competency assessment, and a group of policies towards recruitment, remuneration, and industrial relations. The activities in this group may vary in their degree of strategic importance, from time to time (Hussey 1998). Merwe (2002) argued that managing people is the key activity, as it is people who manage the project tasks. One success key is the motivation of those involved with the communication area of project management. A successful outcome of strategy implementation can only be achieved when business and human behavioural processes are merged. A necessary condition

for change-readiness is a high degree of motivation, on the part of employees, to change aspects of the organisation. In addition, four suggestions were offered for making an organisation change-ready – 1) Implement a unit-by-unit change-readiness assessment, 2) Develop more participatory approaches to how everyday business is handled, 3) Give people a voice and 4) Drive out fear (Luecke 2003). Team motivation was identified as having the strongest overall influence on project success and as an important factor in all phases of the project. It was found to be a strong driving force and, if lacking, became a strong restraint (Kerzner 2003). When people sense that the leader does not authentically believe in any of the elements (goals, processes, or tools), they are hesitant to follow with any enthusiasm. When the leader lacks integrity and exhibits incongruity between words and actions, people may go through the motions but do not exert an effort that achieves meaningful results (Englund et al 1999). Resistance to change is the result of management's belief that the implementation of project management will cause “culture shock,” where functional managers will have to surrender some or all of their authority to the project managers (Kerzner 2001).

The project management team must understand and use knowledge and skills from at least five areas of expertise. These are project management body of knowledge, application area – standards and regulations, project environment, general management knowledge and skills and interpersonal skills (PMI 2004). The strategic characteristics of team programs, found by Bursic (1992), can be considered common to most types of team programs and were repeatedly mentioned in the literature. These are interdisciplinary nature, continuous program, integration of organisation structure, education and training, full time coordinator, top management support and clear objectives, goals, and strategies.

Implementers not only have the vision to spot and encourage creativity, but they also have the ability to establish what is necessary to implement and exploit ideas. Bringing on board the stabilisers and utilising their strengths achieve the latter, which lies in exploitation. Implementers are, therefore, the true strategists. To them, strategy formulation and implementation represents a natural process, as soon as they recognise the potential of the creators' ideas (Chaharbaghi 1998).

Avisona et al (2004) suggests that the linkage between strategy, infrastructure and processes should be examined in terms of a process, structure and people, rather than at an abstract level of attempting to relate internal architectures to strategic goals. Whichever team structure an organisation chooses, it is critical that changes be made carefully to avoid disrupting work in progress and to give the people involved time to understand the change and become

comfortable with it (Longman et al 2004). Employees at all levels must feel that the chosen measurements really do reflect the strategic orientation, otherwise the credibility of the control systems will be reduced (Nilsson et all 1999).

Alio (2005) found that by the end of the implementation, most teams encountered significant unforeseen obstacles, and, indeed, prevailed against many of them. A common pitfall is to neglect celebrating the successes, especially in light of encroaching new strategic initiatives. A reward and compensation system, which ties individual and group reward, specifically in regards to success in implementation is, again, one excellent method for underscoring how valuable these contributions have been.

Resources seldom report directly to the person managing the development effort. Instead, they usually report directly to functional managers and are “loaned” to the project manager in a matrix manner. Many project managers are not adept in the leadership skills required to influence a team that does not directly report to them, nor have the breadth, depth or experience to successfully manage across a wide array of functional disciplines required to bring a new product to market (Martinelli et al 2005). Noble (1999) argued that leadership could play a critical role in determining the success, or failure, of strategic implementation. Leading a cross-functional effort requires a broad array of skills. Effective leaders must be technically skilled in their own functions, knowledgeable and appreciative of other functional areas, skilled at coordinating groups and managers with vastly different mindsets, and authoritative and credible enough to use both formal and informal channels to marshal the resources needed. It is possible to lead people through this change process if the leader asks many questions, listens to the concerns of all people involved, and seeks to build support so that people feel they have an active role in the development process. A flexible process works better than a rigid one (Englund et al 1999). Empowerment is a method by which individual employees are given the autonomy, motivation and skills necessary to perform their jobs in a way that provides them with a sense of ownership and fulfilment, while achieving shared organisational goals. Noble (1999) argued that when people are properly managed and motivated, they can act as a powerful strategic force. An empowered organisation is more responsive, in that people closest to the source of problems are able to deal with them, and gives flexibility in managing change. If flexibility is prepared for, it will be used. Yet, it will often be used even if it is not prepared for (Olsson 2005). Ford et al (2006) suggested that improving project management reduces average forecasted durations, compared to deadlines and variances in durations, which reduce the need for exercising the value of strategic flexibility. Fleming et al (1998) argued that earned value could provide any project manager with an early warning tool that sends out a signal from as early as the 15% completion point

on a project. Continued improvement in understanding how flexible project strategies interact with project management, to influence value, can improve project planning, management, performance, and value. An empowered organisation should provide individuals with a sense of purpose and a commitment to company goals, recognition of individual achievements, and continuous feed back on performance, training where it is needed and autonomy to perform their jobs in a way that suits them. TQM is a driving force towards empowerment, as is much of the modern thinking of continuous improvement (Hussey 1998). Additionally, Bryde et al (2006) supported that the links with a recognized TQM program are more likely to be focused on stakeholders, rather than the customer, in their practices for managing a project, than respondents in companies with no recognized TQM program.

Gunnigle (1994) suggested that personnel policies have a key role to play in effective strategy implementation, since they are the key to implementing strategic choice and to achieving better alignment between strategic direction and workforce management practices. It has a major impact on competitive advantage, organisation structure and culture. HRM is an integral part of the development of strategy in that the respective activities of individuals and groups need to be a central part of the planning process, both before that activity has begun, and while it is underway. Organisations will experience severe problems in strategy implementation if it is not effectively linked with appropriate personnel policy choices. The successful communication of strategy can be seen to form a fundamental part of the successful management of the strategy process. The complex nature of business strategy makes strategies difficult to describe and communicate. Strategy mapping is an approach that can help organisations overcome this difficulty by allowing, describing and depicting the organisational strategy in a picture format. This facilitates better top-down communication, which tends to enhance employees' understanding and awareness of strategy and allows for better execution and measurement of strategy (Scholey 2005). Kaplan et al (2001) suggested the creation of synergies among business units. In addition, he suggested engaging and aligning all employees with the strategic plans. Many companies have adopted the strategy trees methodology (information through tree structures of authority), to communicate how all the elements of their strategy are interrelated.

Heide et al (2002), in their study, examined the role of these factors with regard to strategy implementation information systems. They found that the major implementation barriers seem to be associated with communication problems and structural factors. Organisations, which successfully manage change, are those that have integrated their human resource management policies with their strategies and the strategic change process. Strategy used to be thought of as some mystical vision that only the people at the top understood. Yet that violated the most

fundamental purpose of a strategy, which is to inform each person doing the many thousands of things that get done in an organisation every day, and to make sure that those things are all aligned in the same basic direction (Hammonds 2001).

An important comment from Kerzner (2001) is that companies with superior nonhuman resources may not have a sustained competitive advantage without also having superior human resources. Low performing businesses have the opportunity to improve their performance by restructuring and by establishing appropriate behavioral norms for their employees (Olson et al 2005).

Stakeholders and sponsors

Another key factor is the stakeholders, such as project managers, customers, working staff in the project, project team members, the project management team, sponsor and PMO, may have conflicting objectives and can be found in various categories, from internal and external environment and have influences from different positions and more (PMI 2004). The Instrumental Stakeholder theory holds that stakeholders and managers interact, and that the relationship is contingent upon the nature, quality, and characteristics of their interaction. This view implies a need for negotiation, and expects reactions ranging from standoff to mutual adjustment, depending on such intermediate variables as trust and commitment, or motivational forces (being harmonized or in conflict). The Convergent Stakeholder theory explains stakeholder actions and reactions to changes in these terms, much of which leads to a need for project managers to strive to develop mutual trust and cooperative relationships with stakeholders, and that their actions should be morally based on ethical standards (Bourne et al 2006). Individual personality differences often influence implementation. Different stakeholders have different perspectives to project flexibility (Olsson 2005).

For instance, if an influential stakeholder (who is currently negative) can be turned around in favour of the change, this can provide a major driver in the strategic development process (Grundy 1998). As Bourne et al (2006) mentioned, from the results of two case studies, the "correct" approach to engaging stakeholders is different for every project, even when the stakeholders are the same. The key is for project managers to know how and when to connect to this organisational grid and to identify who the key connectors (stakeholders) should be.

The role of the project sponsor was emerging as complex and difficult. The related literature reflects in general recognition of the vital role played by the project sponsor. Project stakeholders are an important influence factor over the project's objectives and outcomes. The

influence of stakeholders is highest during the initiation of a project and gets progressively lower as the project continues (PMI 2004). Kloppenborg et al (2006) identified sponsor's behaviour as factor, and if performed during project initiation, are associated with three project success outcomes. Of those, defining project performance and success, and mentoring the project managers, are associated with all of the outcome measures. In the study by Fricke et al (2000), project initiation went from the top of an organisation down, coming from upper management, based on strategic initiatives or reactive undertakings in response to customer complaints. McAdam et al (2002) recommended that the measures and measurement system should be derived directly from the strategic planning and implementation process and not just from traditional financial lag measures, as this will help to improve strategy implementation. In addition, Kaplan et al (1996) recommended that at an appropriate mix of measures would yield the best alignment with business strategy and tie in with the strong strategic links between measurement systems and strategy implementation context.

Dinsmore et al (2006), in a case study, found that the role of the sponsor is crucial to the success of transformation programs and that high-profile successes occurred when the whole organisation was mobilized behind a single goal. The role of the sponsor also requires the full support and commitment at the highest level. Ives (2005), in a study of project management, found that the key link between the project and the parent organisation is through the sponsor and the organisational levers used to guide and control the project. These levers include sponsorship and governance, scope and success criteria, structure and authority, and funding and resources. An effective sponsorship and governance model is essential to project success and provide all those required to the organisational context. Changes to project sponsorship or governance, during the term of the project, increase the risk of project failure. While an initial scope position is provided by the organisation to the project manager, the project team develops the final scope position. The project manager has the responsibility to negotiate an agreement, of this scope, with the sponsor. If this is not achieved, the risk of project failure shifts to the project. In addition, changes to the organisational context of a project increases the risk of the project failing (Ives 2005).

Other sponsor behavior factors are: establishing communications and commitment, defining and aligning the project, prioritizing the project, and selecting and establishing the project team, each significantly associated with at least one outcome factor. Kloppenborg et al (2006), in an analysis of the sponsor interviews, revealed the complexity of the sponsor's role. The indirect sponsor behaviors are clearly defined, such as ensuring that the project reaches its goals. Project sponsors are primarily considered responsible for project resources. Most of the project management literature recognizes the project sponsor as a key stakeholder in most

projects. Very little research has examined the role of the executive sponsor in achieving project success. Miller et al (2001) argued that sponsors strategize to influence outcomes by using four main risk-management techniques - 1) Shape and mitigate, 2) Shift and allocate, 3) Influence and transform institutions and 4) Diversify through portfolios. From another point of view, Cicmil (1997) sees an inherent paradox between expectations, project goals, constraints and the balancing of agendas between various stakeholders. Bourne et al (2006) argued that communication, as part of stakeholder risk management, is vital for project managers relationships with not only close, supportive tame stakeholders, but also those that may be hostile to their priorities of project goals and vision. Inclusion of all the relevant stakeholders is a crucial factor of risk management (Getto et al 1999). In the research analysis of Helm's et al (2005) study involving twenty-eight interviews, key attributes of successful project sponsorship were identified. Significantly, project managers appear to be exercising a complex range of behaviour patterns to compensate for inadequate sponsor support in some projects. Important consequences arose for the organisations concerned if, in the process, inadequate sponsor performance is masked and opportunities for problem-focused conversations between project managers and sponsors are reduced or eliminated. In general, there was an overall sense that a significant proportion of the experienced project managers, in the interview samples, were managing the projects successfully in spite of inadequate support at the executive sponsor level, and they are using a complex range of tactics and behaviours to do so, often masking inadequate executive sponsorship in the process.

In the latest body of knowledge book, PMI (2004) stated that project management is concerned with "adapting the specifications, plans, and approaches to the different concerns and expectations of the various stakeholders. Grant et al (2006) argued that project management becomes the dominant way that work is accomplished as organisations strive to become good at delivering projects successfully. Thomas's et al (2002) study findings, on the meaning and value of project management, were that the participants used efficiency and effectiveness values in different combinations that seemed to relate to their overall strategic or tactical understanding of project management. Many projects fail because stakeholders do not continue to support the vision or objectives of the project. There is a need to describe the vision for project management and the environment, attitudes and behaviors expected in a policy statement from executive management while simultaneously identifying and developing the project management competencies in all areas of the business, practitioners, and functional and upper management (Eve 2007). Thomas et al (2002) noted that the lack of senior management support is consistently identified as a key factor in failed projects.

According to Miles et al (2003), there are two types of strategic influencing forces in an organisation environment. First, forces that inhibit major shift in an organisation's strategic behaviour and second, there are powerful forces inside the organisation working against major changes in any satisfactory pattern behaviour. In many cases, this is because the team does not recognize changes in the relative power or position of key stakeholders and fails to make appropriate adjustments in its stakeholder management activities (Bourne et al 2006). Stakeholders should be identified as early as possible since they are used to assist in all phases of development, to assist designers in defining any needs, to clarify requirements and specifications, and in all phases of testing (Powell et al 2006).

Kloppenborg et al (2006), in their research, tested the effects of rigorously identified project sponsor behaviors on project outcomes. Each of the six behavior factors (establishing communications and commitment, defining and aligning the project, defining performance/success, mentoring the project manager, prioritizing and selecting, and establishing project teams) are significantly correlated with at least one of the three outcome measures (meeting agreements, customer, and future). Most of the behavior factors are associated with more than one outcome measure. The clarity and focus these behaviors bring would also seem to be consistent with successfully achieving the agreed-upon project specifications, subject to constraints of time and money (Kloppenborg et al 2006).

On the other hand, and according to Olsson (2005), key stakeholders are also directly linked to most projects, project owners, users, project management sponsors and contractors. From the analysis by Englund (2000), there are three important concepts that are important in the definition of a project business - ‘part of business', ‘objectives', and organisation. The commitment to support the solution delivered is stronger as a direct result of the involvement of key stakeholders and decision makers.

Organisational Environment

Organisational structure does play a key role in the manner in which projects are identified, ramped-up, executed, and managed to a full conclusion. Certain structures, such as a matrix structure, which requires project managers to work across functional silos, are more complex. A simpler approach, in which organisations create project teams (formed to drive home company strategy), results in a stronger project structure (Charvat 2003).

Rhodes OU T833 (1999) identified various influences of an organisation's external environment. These influences have an embedded complexity, including legislation, competitors, suppliers, market trends, support frameworks, government and European or

other unions polices and technology innovation trends. Nielsen (1983) suggested that building consensus with external groups have a positive influence on both strategy developments and implementation. This was supported through the examination of the relationships between strategic planning and consensus building with external groups and constituencies. The importance of consensus building, with external groups during strategic planning and implementation in various cases from different economic and political sectors, are examined in conjunction with the principles considered.

Artto et al (2005) argued that the environment is an important determinant for successful management approaches with projects. This emphasizes the importance of adaptive processes and the relevance of an open-system approach, in organisational analysis, for project business. The management of inter-organisational collaboration is relevant for projects and business activities in networks that cross organisational boundaries.

A project can be failed because of an inefficient “stage gate reviews” that lacked the feedback necessary to detect significant threats, such as a market shift. A company, however, must adjust the “stage gate reviews” to cover market shifts as a measure to prevent such failure from repeating. McAdam et al (2002) argued that organisations fail to turn strategy into effective action due to inadequate or inappropriate measures. Consequently, measures must reflect, more comprehensively, the strategy and capabilities of the organisation and not just the financial results. One key factor of alignment is the consistency between decision-making and action. Most companies are using project stage gates to adapt and maintain the alignment during the course of the project execution (emergent strategic feedback level). This level of the mediating process provides strategic feedback, usually resulting from environmental changes, which can lead to emergent strategy or a strategy that is not intended, or planned, but emerges from a stream of managerial decisions through time.

Blomquist et al (2006) states that organisations' environmental complexity is directly related to the use of program and portfolio management practices. Environmental instability and munificence are two of the most important dimensions of the environment, in terms of their effects on strategy (Bantel 1997). The organisational environment consists of the interaction among key suppliers, consumers, regulatory and other government agencies and, of course, competitors. This produces an increasingly complex and powerful set of norms, which dominate practice. Success, in this case, is achieved when meeting those norms by adopting similar structures and practices. The Institutional Theory is using the term institutional isomorphism to describe progressive convergence through imitation (Mintzberg et al 1998).

The external business environment factors are triggering changes between them, but also are affecting others internally. Some of them are social, competitive, political, ethical, demographic, economic, legal, infrastructure and ecology (Hussey 1998). For example, government regulations must be factored into project management process. They will add additional work and constraints that must be integrated into the scope of projects (Longman et al 2004). By identifying the interdependencies between all the internal and external domains, and allocating the past projects to each dependency, the perspective that is followed is determined. Looking at the spread of projects over the domains, patterns will begin to emerge for different combinations of classifications. By connecting similar combinations, the beginnings of an alignment perspective will emerge (Avisona et al 2004). Change programs almost never proceed according to a plan. All types of unanticipated problems crop up as people move forward. Developments in the external environment can also affect what is going on inside the company. The company's strategy may change in response to the external business environment, the chosen solution may prove technically impossible to implement, or people may refuse to align with the intended change (Southam et al 2005). So change leaders must be flexible and adaptive, and their plans must be sufficiently robust to accommodate alterations in schedules, sequencing, and personnel (Luecke 2003). Religion, politics, and culture are three areas where people can get into heated confrontation, and there are no easy solutions since opinions are based on personal beliefs. In many companies, managers who possess power see any change as a threat (Bennet 1998).

According to Luecke (2003), there are two types of theories in an organisations' strategy implementation. Theory E changes aims for a dramatic and rapid increase in shareholder value. It is driven from the top of the organisation and makes heavy use of outside consultants. Theory E relies heavily on cost cutting, downsizing, and asset sales to meet its objectives. Theory O changes aims to create higher performance, by fostering a powerful culture and capable employees. It is characterized by high levels of employee participation (and a flatter organisational structure), and attempts to build bonds between the enterprise and its employees. Unlike Theory E, this approach to change is a long-term proposition. It is believed that both theories can be analysed, after further research in the real organisational world, and that they have different types of influence on project management context. Stagner (1969) supported the view that a corporation is a coalition as well. Whitney et al (1983) suggested that cohesiveness could result in greater polarization, thereby impeding the successful implementation of the strategic plan.

The organisational cultures and styles are reflected in numerous factors of internal behavior and have direct influence on the project. The organisational structure limits the availability of

resources, in a spectrum from functional to projectize. Culture is the generic term for the cognitive systems and behavioural patterns that exist in all organisations. A company's culture can act as a kind of organisational glue, thus affecting the degree to which a strategy is successfully implemented (Heide et al 2002).

The key project-related characteristics are project manager's authority, resource availability, responsibility for budget control, the role of project managers, and project management administrative staff. The parameter of structure can be divided into functional, weak, balanced, or strong matrix and projectized. Most modern, and fundamentally functional, organisations involve all previous structures in various levels and handle a critical project by creation of a special project team (PMI 2004).

Longman (2004) states that strategy formulation is worth greater attention as it distils vision into critical business issues, which then get translated into projects with discrete deliverables, and back up plans. On the other side, project management often overlooks things when attempting to move strategy from boardrooms to back offices and the market place. Events in the environment, in which the company operates, have a direct effect on the success or failure of a company. Strategic management seeks, as one of its aims, to relate the company to its environment, and to identify, in advance, the threats and opportunities which environmental change brings (Hussey 1998).

In Gallier's et al (2002) book, a study used a set of factors - shared domain knowledge, communication, connections with planning processes and implementation success - that influence the social dimensions of short (mutual understanding) and long (congruence of vision) term alignment between business and information objectives in the Canadian life insurance industry. Ives (2005) stated that over 75% of all business transformation projects fail because of two main reasons. These are the lack of internal communications and the project team's failure to recognize the impact of the change project on the business, as a whole. Anderson (2003), in a research, covered fifty separate projects conducted in Norway with a generous cross-section of objectives and participants, a wide range of industries, small and large companies, and different geographical regions. These projects looked at power, role, task, and people's cultures. He found that people are influenced by communication of task requirements leading to appropriate action, which is motivated by personal commitment to goal achievement in an appropriate control and communication structure. Information about task requirements and problems flows from the center of task activity upward and outward, with those closest to the task determining the resources and support needed from the rest of the project. A coordinating function may set priorities and overall resource levels

based on information from all task centers. The structure shifts with the nature and location of the tasks. Project managers should adjust their communications and strategies, depending on the culture of the base organisation.

Bennet (1998) suggests caution with strategies. Project objectives need to be flexible so that when an objective changes, the strategy can change. In their study, Larson et al (1989) found that the clearly defined objectives was the only contextual factor to be significantly related to each of the success criteria and this effect was by far the strongest of any of the variables. Often, the strategy will change while the objective remains the same. As a result, there is a need to do the same thing in less time and, sometimes, with fewer resources and the same objective, but with an altered strategy.

Project-based management is directed toward organizing activities to achieve goals of scope, cost, and time and induces a temporary organisational structure as part of, or even replacing, the old organisational structure (PMI, 2004). The analysis from Artto et al (2005) indicated several scientific and managerial implications that should be covered in the understanding and defining of project business. Artto et al (2005) argued that project business is contextually linked with the business environment. It is obvious that project business does not only evolve from the traditional project management discipline. A more natural assumption is that general management science may include more relevant research, which contributes to the business thinking and is related to organisations and their projects. To be project based, an organisation has influence in project implementation. Non-project based organisations may lack management systems designed to support project needs efficiently and effectively. In contradiction, project-based organisations already have the operations adopted by management (PMI 2004). For example, perhaps in the manufacturing arena, the need for project management infrastructure often competes with a robust and substantial manufacturing operations infrastructure (Grant et al 2006). A survey study by Martinsuo et al (2006), involving one hundred and eleven companies and representing a variety of industries, identified external pressure and internal complexity as driving forces for introducing project-based management. The choice of introducing project-based management is dominantly motivated by increased degrees of internal complexity. A significant degree of variance, in the improvement of project culture, is explained by external pressure, depth of project-based management adoption, and local success of project-based management introduction. Although the drivers do not appear to have a significant role, the degree of process change has an indirect link.

Balanced Score Cards (BSC)

Once the success factors have been defined for each strategy object and each success factor linked to a key set of performance indicators, the BSC construction has been completed, logically and inseparably linked to the strategic architecture. By integrating strategy formulation and continuous implementation monitoring, object-orientated strategic management eliminates the problems associated with the rational & "top-down" planning approach. Operational line-management is no longer distant and removed from the strategy formation process. It is integrated into the process along with the strategy objects, which they monitor, and control, through the BSC (Littler et al 2000). A link between strategy and business plans is required to ensure that the right projects are initiated and that decisions are aligned to the strategy. Some common techniques to achieve this are the balanced scorecard (Kaplan et al 1996).

Epstein et al (1998) is linking the business strategy, and its implementation, with balance scorecards. He states that a balanced scorecard can be cascaded down through the organisation to support the development and implementation of strategy. It is taking the part of the overall strategy, and indicators, and is designing other indicators that reflect on the needs. It is a way to link employees' performance evaluation with a reward system.
The balanced score card reflects many of the attributes of other management frameworks, but more explicitly, links measurement to the organisation's strategy. It is interesting to note that similar to a balanced score card is the Tableau de Bord developed in France in the early twentieth century. It is also establishing a hierarchy of interrelated measure and cascading them to different organisational levels, forcing functions and divisions of an organisation to position them in the context of the overall strategy.

Ethical factors

There are three levels of distinct, yet interrelated, areas of social responsibility - basic responsibilities (generated by the existence of the organisation and including the requirement to keep within the letter of the law), to observe formal codes of conduct, to safeguard basic shareholder and employee interests, and to deal honorably with customers, suppliers and creditors. Organisational responsibilities, which meet the changing needs of stakeholders, respond to changing attitudes, observe the spirit of the law (rather than just the letter), and anticipate changes in legislation. Societal responsibilities help create a healthy environment, in which an organisation can prosper, and help to solve key social problems which, if not dealt with, could affect the long-term prospects of an organisation (Hussey 1998). The purpose of business ethics is not so much to teach the difference between right and wrong, but to provide people the tools for dealing with moral complexity - i.e. for identifying and thinking through the moral implications of strategic decisions (Hill et al 2001).

Risk management

Risk management is always a project success factor (Verzuh 2005). The risk management process is fundamental to the successful delivery of any project, whether it is light or heavyweight in nature. The risk management process is there to ensure that each risk is properly identified, documented, categorized, and resolved within the project environment. Risks are defined as those project events that are most likely to adversely affect the capability to produce the required deliverables. The effective and efficient implementation of risk management process lies in finding a balance between centralized and decentralized activities (Getto et al 1999).

Hillson (2004) identified that project risk management has to deal with increasing complexity and issues extending beyond project implementation into strategic planning and business operations, while developing links to the growing general risk management and governance requirements. Cervone (2006) stated that it would be difficult, if not impossible, to provide a plan for dealing with every possible risk in every step of a project. With each risk assigned a risk factor value, a road map is produced for mitigating project risk by only developing contingency plans for the tasks that have the highest risk factor.

Risk is exposure to the consequences of uncertainty. Business strategic risks influences strategy implementation project management context in many different ways. Business risks include all those risks that might impact on the viability of the enterprise, including market, industry, technology, economic and financial factors, government and political influences. On the other hand, identifying opportunities, as well as risks (and taking appropriate action to exploit them) can obtain additional benefits and improved project outcomes.

There is the obvious situation where a company is very dependent on one product for its profit. A similar type of risk is where the bulk of a company's business is tied to only a few customers. Additionally, there is raw material risk, which may vary from the difficulty of worldwide suppliers to interdependence on one, single supplier. Cooper et al (2004) argued that the scope of risk management for projects includes risks associated with the overall business approach and concept, the design and delivery of the project, transition into service, and the detailed operations and processing activities of the delivered asset or capability.

Operations and processing risks include all those perils that might impact on the design, procurement, construction, commissioning, operations and maintenance activities, including major hazards and catastrophic events (Cooper et al 2004).

Market risk, as the market position of each main product is equally important for the organisation to understand the areas in which it has leadership. Market risks are an important consideration and should be linked with the judgment from people inside the company. Finally, technological risk should be considered - not only the possibility of product obsolescence but also the likely changes in production processes that are likely to cause the company problems in the area of plant and machinery.

Project risk management is seen as a formal process whereby risks are systematically identified, assessed and provided for. It includes all the things that might impact on the cost, schedule or quality of the project. The classification can be approached by scope, quality, schedule and cost risks. Risks are characterized by the following factors: the event, the probability and the severity of the risk (Wideman 1992). In a project context, it is the chance of something happening that will have an impact upon objectives. It includes the possibility of loss or gain, or variation from a desired or planned outcome, as a consequence of the uncertainty associated with following a particular course of action. Thus, risk has two elements - the likelihood (or probability) of something happening, and the consequences (or impacts) if it does (Cooper et al 2004). Project risk management activities commence at the initiation of the project. They are developed and continue throughout the project life cycle. Project risk management is not a discrete stand-alone process, but is integrated with other project management functions. The implementation of project risk management is the responsibility of all project stakeholders, and they participate actively in the process. There are several management processes linked to projects that require integration with project risk management. Many projects have environmental implications and many require explicit environmental risk management activities. Regulatory compliance is often an important driver, although, many companies undertake environmental management as part of their own good corporate governance and triple, bottom-line reporting activities. Wideman (1992) illustrates risk integration, the links and the reflections between other factors of project management, in Figure 4.7.2.

Tinnirello (2001) wrote about a critical assessment of the risks inherent in a project, any potential harm associated with those risks, and the ability of a project team to manage those risks. According to Maytorena et al (2007), there are, generally, two steps in the risk identification process - information gathering and risk categorization. Anything, which affects the company's future competitive position, is a risk that should be carefully considered (Hussey 1998). Project risk requires alignment with strategic direction and changes to marketing windows of opportunity remain a constant threat throughout the project implementation (Merwe 2002). Risks first need to be dissected into categories -

1) market-related: demand, financial and supply, 2) completion: technical, construction and operational and 3) institutional: regulatory, social acceptability and sovereign. Strategies for coping with foreseeable risks can be developed using management science approaches, keeping in mind that costs of controlling risks must fit with expected benefits (Miller et al 2001).

The style of information search plays an important part in the Risk Identification Processes (RIP) and there is no significant correlation between the RIP measure and age, years in management or years in a job title, which are all perceived as proxies for project management experience. Risk management training contributes to improving the RIP, and a graduate level of education seems to contribute to a better RIP as well. The right feedback style, risk management training, and level of education have been highlighted as significant.

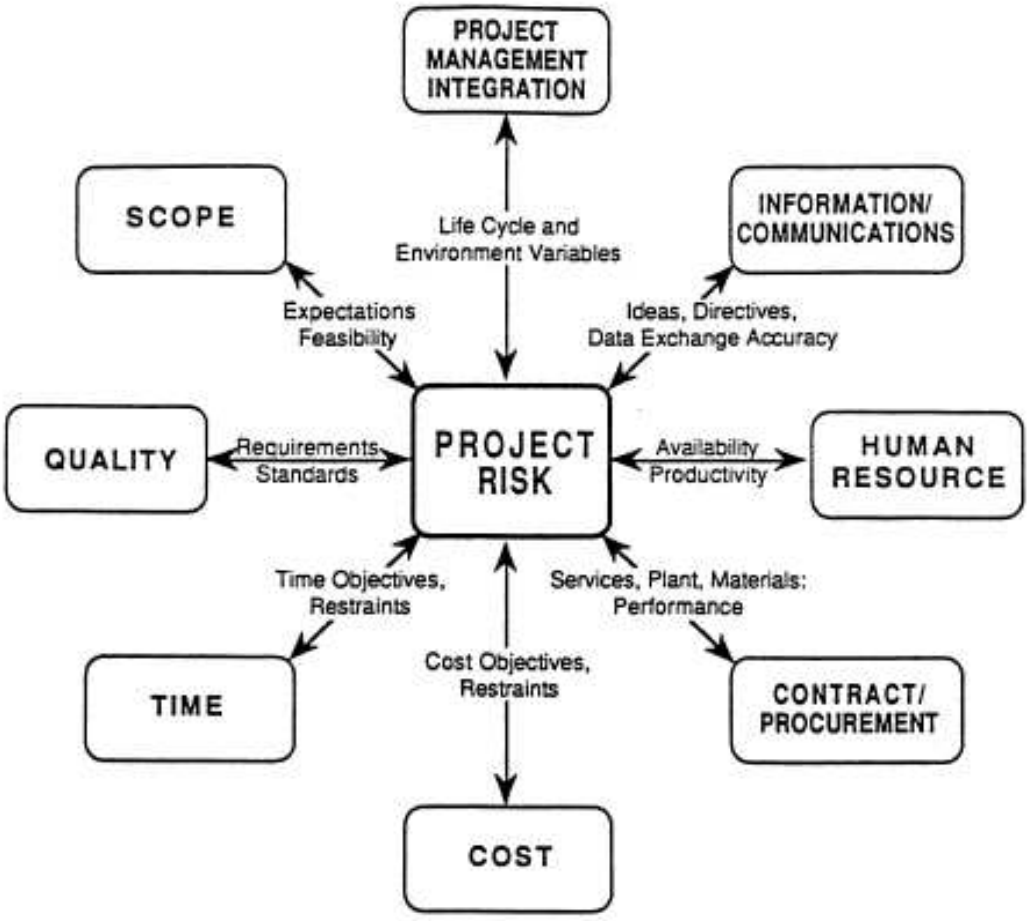

*Figure 4.7.2 Integrating risk with project management factors (*Wideman 1992)

The identification of risks, without a search for information, tends to be a common strategy used by those with more project management experience and with a non-graduate level of

education. Having more years of project management experience does not necessarily lead to a higher RIP measure.

There is a significant difference in the styles of searching for information used by project managers and their RIP measure. Empirically, reliance on the project management experience, alone, in the identification of project risk is inadequate. Risk registers and brainstorming by experienced people may not be adequate for effective risk identification, and this has strong implications for effective risk management practices (Maytorena et al 2007).

Finally, Bourne et al (2006) found many similarities and synergies between stakeholder and risk management. It is also important to recognize that the management of the engagement process of prioritized stakeholders is an essential part of a risk management plan for any project The risk responses, defined by the PMBOK® Guide (PMI, 2004), can be useful as a guide for managing the risk aspect of relationships. Avoidance, and the elimination of any threat posed, can be managed through improved communication with stakeholders.

The findings on projects' risk management by Miller et al (2001) were first, risks understood by hiring experts or undertaking analysis and simulations. Second, risks that are significant, but transferable (especially if they are closely matched by market instruments), can be shifted to parties that can best bear them. Third, project risks are pooled through the constitution of large portfolios. Fourth, options are designed to allow a greater range of responses to come into line with future outcomes. Fifth, remaining risks are shaped or transformed through influences on drivers, as they are the result of behaviors by other social agents. Finally, sponsors embrace residual risks. This layering process is repeated in many episodes until final commitments are made. The increased pressure to complete projects faster, cheaper, and better (as well as organisational competition) have increased the need for project strategies and management to manage project risk in effective ways (Ford et al 2006). The latest results from the research study of Maytorena et al (2007) indicated that there is a need for a more thorough approach to risk identification. The role of experience in the risk identification process is much less significant than it is commonly assumed to be. By contrast, the style of searching for information, level of education and risk management training do play a significant role in the performance of risk identification. From another point of view, projects' deviations, that do occur, are based on uncertainty or ambiguity. Hällgren et al (2005) showed that deviations, uncertainty, and ambiguity were natural parts of project life, so natural that their occurrence was not seen as a surprise. According to project management literature, risks, changes, and major deviations should be managed through the application of different

methods and tools. Thus, there is a need for a more holistic understanding of the project and its complexities. All the different deviations that arise cannot be planned for in advance. This is in contrast to the traditional project management literature that emphasizes planning and control in order to handle deviations. As a result, deviation can be treated and managed according to a certain, static procedure. There is a need for different tactics, where the tactics depend on the prevalence of the deviation and the knowledge needed. The repetitiveness and uniqueness of the deviation create different needs for interaction. To take this a step further, it is argued that deviations could be seen as a means for knowledge transformation. This also means that what has a negative impact on the specific project could be positive in the long run, as it contributes to the knowledge pool of an organisation. Depending on the deviation, different strategies to manage the deviation are needed.

Earned value

The earned value project management concept has been demonstrated to be an effective technique in the management of projects. In the early 1900's the concept of earned value originally came from industrial engineers in factories who, for years, have employed a three-dimensional approach to assess true "cost-performance" efficiencies. The Program Evaluation and Review Technique (PERT) was then introduced by the U.S. Navy, in 1957, to support the development of its Polaris missile program. The term earned value (EV) operation, in organisational projects environment, has been in use since the 1960's when the Department of Defence adopted it as a standard method of measuring project performance (Raby 2000). After years of earned value being imposed on industry by the government as a unilateral mandate, in 1995, private industry, as represented by the USA's National Security Industrial Association (NSIA), was allowed to assess the utility of the earned-value criteria (Fleming et al 1998). According to Raby (2000), the three major components of EV are Budgeted cost of work scheduled (BCWS), Actual cost of work performed (ACWP) and Budgeted cost of work performed (BCWP). Schedule variance (SV) is the EV minus the planned budget for the completed work (BCWP ± BCWS). Cost variance (CV) is the EV minus the actual cost (BCWP ± ACWP). Performance indices are often merely ratio expressions of the SV and CV. A schedule performance index (SPI) is the EV divided by the planned value (BCWP/BCWS) and the cost performance index (CPI) is the EV divided by the actual cost (BCWP/ACWP). The actual cost (EaC) significantly exceeds the budget. The simplest formula (1) for arriving at the EaC, at the review date, is:

$$\mathrm{EaC} = \frac{(\mathrm{BaC} - \mathrm{BCWP})}{\mathrm{CPI}} + \mathrm{ACWP} \qquad (1)$$

Referring to Figure 4.7.3, the project is in some difficulty in meeting its target costs. At the review date, the actual cost is greater than the planned cost for the completed work (ACWP > BCWP).

According to Thiry (2004), there are many types of value and all of them must be considered. Depending on the client's objectives, they will vary in importance, and more energy should be spent on optimizing those considered most important, while the less important ones might not be considered at all. These are using value, which is linked with the amount of current resources expended to realize a finished product that performs as it was intended. Esteem value is linked with the amount of current resources a user is willing to expend for functions attributable to pleasing rather than performing; e.g., prestige, appearance, and so on. Exchange value is linked with the amount of current resources for which a product can be traded. It is also called worth, as the minimal equivalent value is considered. Cost value is linked with the amount of current resources expended to achieve a function measured in dollars and, finally, function value is the relationship of function worth to function as cost.

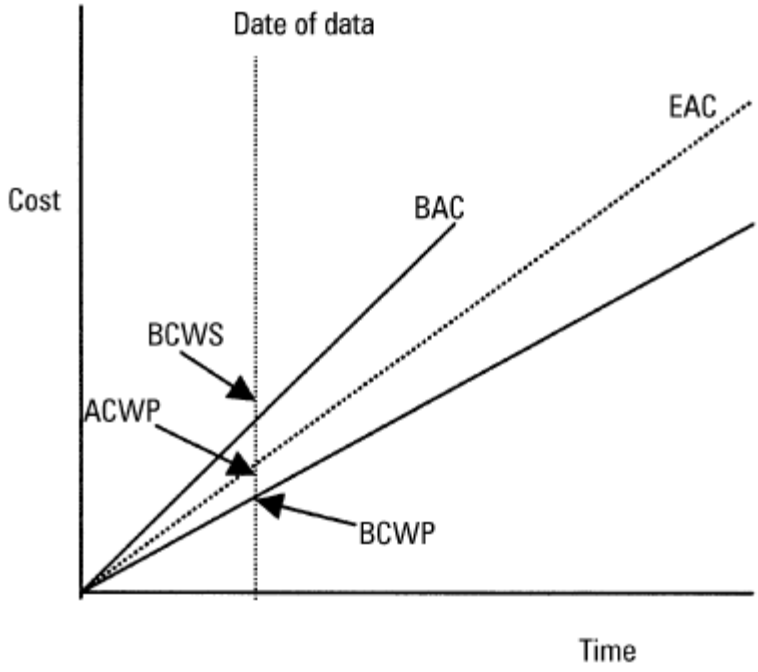

Figure 4.7.3 Forecasting earned value (EV) at completion (Raby 2000)

The Project Management Institute (PMI) and the International Project management Association (IPMA) organisations have identified that the field of project management, beyond a focus on the management of projects, is not just to deliver projects on time, on budget and in conformity with technical and quality specifications. This signal of value management allows the forecasting of the final required funds needed to finish the job within a narrow range of values. If the final forecasted results are unacceptable to management, steps

can be taken early to alter the final requirements (Fleming et al 1998). The goal is to create value for the business and to embrace the management of programs, portfolios and organisations that achieve their strategic objectives through projects, programs, and portfolios.

Project management maturity

According to PMI (2005), project management maturity is a conceptual framework of those organisational practices, which are used for systematic management of correlation capabilities between projects, programs and portfolios, in alignment with the achievement of strategic goals. Maturity in project management is the implementation of a standard methodology and accompanying processes, such as a high likelihood of repeated successes (Kerzner 2003). Selecting appropriate project management methodologies and life cycles, and supporting them with the proper tools, can help immeasurably with project success (Tinnirello 2001). An investment in project management methodologies helps companies understand the steps to be followed to achieve project success throughout the lifecycle of the project (Dinsmore et al 2006). In the survey by Grant et al (2006), one hundred and twenty six organisations reveals that the median level of project management maturity is level two out of five, with respect to thirty six of the forty two components analyzed, as there is not a significant difference in project management maturity between industries. Project management maturity models are designed around the company's own environment, structure and needs, and usually comprises of four to five levels of maturity (Eve 2007). The linkage of strategic management and the theory and practice of project management attest to the importance and maturity of project management (Knutson et al 2001). The value of project management maturity assessments clearly rests on the establishment of the vital link between project management maturity and successful project delivery (Grant et al 2006). Shenhar (2005) suggested a new approach - Strategic Projects Leadership (SPL) - which is based on strategic, operational and human side of leadership, having total responsibility by doing the right things correctly and involving metrics, addressing complexity and organisational processes in order to create value. The emergence of project management maturity models is a fairly recent phenomenon that can generally trace its roots to the Capability Maturity Model developed by the Software Engineering Institute (SEI) at Carnegie Mellon (Grant et al 2006). SEI Capability Maturity Model was an attractive starting point for the development of project management maturity models. There are currently over thirty models found, serving the existing market and many of these models have been described in the literature. Additionally, several authors have contributed case studies that describe and illustrate the implementation of one of the prevalent models.

Similarly, OPM3 bridges the gap between strategy and individual projects through three basic elements - knowledge, assessment and improvement. This is linking the project management context in a cyclical way, with continuous improvement, by illuminating the important link between projects, organisational strategy, and the importance of organisational support for project management practices. On the other hand, improving operational effectiveness is a necessary part of management, however, it is not strategy. Strategic continuity, in fact, should make an organisation's continual improvement more effective (Porter 1996). The linking path is starting by the arrangement of assessment with selection of required knowledge from the project management and organisational contexts (including strategy). The next step is the performance of the assessment (by linking to the best practices knowledge). The results of the assessment step lead to the next step, organisations strategic plan for improvements (implementing improvements over a certain time frame). Finally, reassessment is performed and the cycle continues within a time frequency.

Generally, project management is supposedly a systemic approach to the management of change, but its foundation lies in the traditional, rational managerialism, thus facing an increasing threat of irrelevance unless newer models are produced to respond to change and complexity. Jaafari (2003) has used the environmental complexity and project manager's capability, in complexity reduction, to define four typical approaches or Broad Classification of Project Management Models as shown in Figure 4.7.4 : (1) ad-hoc model; (2) bureaucratic model; (3) normative model; and (4) creative-reflective model.

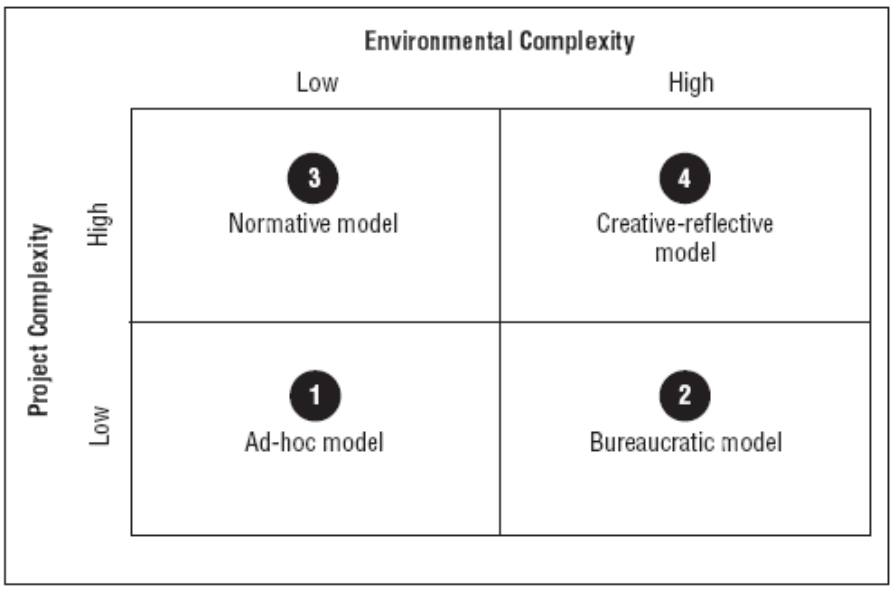

Figure 4.7.4 Broad Classifications of Project Management Models (Jaafari 2003)

Methodology is a set of guidelines or principles that can be tailored and applied to a specific situation. In a project environment, it can be a list of things to do. This could be a specific approach, templates, forms, and even checklists used over the project life cycle. There is not one universal methodology that will suit all projects. Depending on the type, complexity, and completion date of the project, it may be necessary to assess the type of methodology needed. The strategy must be correct before the selection of a project or development methodology. Charvat (2003) argued, “Determine your business strategy first, and then focus on the tactics you wish to employ”. The benefits of adopting such a project methodology include - 1) it adds value to the business in terms of repeatable standard, 2) it provides a uniform way for projects to be managed, and 3) it provides a platform to introduce quality and planning into the project.

PMI (2004) divided the basic project management process into five groups - initiating, planning, executing, monitoring, controlling, and closing process groups. The latter are characterized as seldom and discrete or one-time events with overlapping activities at varying levels of intensity. Those process groups’ link influence and impact by interacting with each other, in complex ways, according the objectives they produce. Consequently, their output of one becomes the input to another. In addition, they are effectively driving the progress to completion by interacting and crossing the project phases. The later sometimes is not applicable to all project types.

The traditional project methodologies (i.e. the SDLC approach) is considered bureaucratic or "predictive" in nature and have resulted in many unsuccessful projects (Charvat 2003). Rhodes OU T833 (1999) identified four open-ended (without clear beginning and finishing point phases) project implementations. These are initiation, planning, application and consolidation. In line with the previous argument, Vassilopoulos (2004) noted that, in practice, it is necessary from the beginning to formulate and adopt the appropriate flexible implementation strategy in order to tackle and solve the various problems that might appear during a project' s phases.

By author’s experience, heavy methodologies are predictive in nature, which results in many unsuccessful projects. A heavy methodology takes time; the design and deployment are dependent on each other. Light methodologies are more agile and adaptive in nature. They focus on being more informal, yet communicative. Light methodologies are designed and built face-to-face so that information flows more freely and swiftly than a heavy methodology would PMI (2004).

There are circumstances in which it may be necessary, or appropriate, to combine two methodologies to create one perfect tailored methodology. Sometimes, it is more feasible to dynamically build a methodology from other methodologies. Starting with a waterfall methodology, it is possible (during the life cycle of the project) to then realize that using a RAD methodology may be more appropriate. From a methodologist's perspective, each methodology offers its own set of strengths and weaknesses (Charvat 2003).

Organisational knowledge and learning

Knowledge resources create a sustainable competitive advantage and link strategy with activities and resources. The inability to manage knowledge comes from the failure to measure the cause and effect relationship emerging from knowledge resource decisions. In front of huge volumes of information and knowledge, particularly in the dynamic, complex international business environments, there is a need for the prioritisation of knowledge resources for strategic action. This means a clear linkage of strategy with knowledge activities and resources. This link is related to the business development processes and formulation of strategy and implementation. It should be filtered and communicated to all staff involved in strategy implementation. Lorange (1998) states that strategies are becoming increasingly incremental, based on the learning that is taking place around each strategic project. In knowledge based organisation, formal strategic plans become temporary, in relation to continuously changing portfolios of projects and programs due to continuously improvement of strategies. A learning organisation is where five learning disciplines are continually pursued - personal mastery, improving individual mental models, building a shared vision, team learning and thinking systematically (Jaafari 2003). Organisational learning involves people as they act, experience, think and reflect, but more than individual learning, it requires a sharing of knowledge and perceptions. Thus, as Jelinek (1979) points out, organisations learn by codifying individual insights, thus making them accessible to others. In order to implement a strategy, however, employees need not only to be aware of its existence but also to have the necessary knowledge and skills for implementing it. As a result, learning becomes a key factor and is usually a part of change. Sometimes change may precede learning and, sometimes, changes can be implemented without any learning taking place. Wilson (2003) argued, “We shall never be able to escape from the ultimate dilemma that all our knowledge is about the past, and all our decisions are about the future”. Ward J, et al (2002) suggested that one key aspect of any strategy is to obtain the maximum value from past projects, which implies a consensus view of the current situation before defining new requirements.

Maylor’s (2001) study and discussions with managers from a very different organisation showed that most projects started with the consideration of the documented reviews from

previous similar projects. He showed that the necessity to improve the process is paramount. This was reflected in levels of success comparable with the best in the world today. Kendrick (2004) suggested that, at the end of a project, it is necessary to conduct a post-project analysis to capture lessons learned and practices that went well and should be used on future projects. He also showed that project processes that require change need to be identified, and that recommendations for a remedy need to be generated. It is then necessary to review previous project problems, historical data, lessons learned, and databases containing risk information, both inside organisation and from public sources. In project management maturity's highest level, an improvement process must be in place in order to continuously improve the schedule definition process, resource planning and cost control process. In turn, lessons learned should be captured and used to improve resource-planning efforts, monitoring and control efforts (Grant et al 2006). Effectively and efficiently capturing the lessons learned from past projects is the key enabler to making any operation successful. There are numerous ways to perform this process, but the key elements are that it must be easy to use, take minimal time, have full involvement, and provide fast feedback to the participants (Chin 2004).

Organisational employees, however, need to increase their knowledge in order to implement a strategy successfully (Heide et al 2002). The more advanced knowledge that is passed to middle management and the rank and file, the more receptive they will be once the implementation phase begins (Noble 1999). Action learning is a reiterative or cyclical process and has been suggested by a wide variety of both scholars and consultants as an organisational learning tool. The term "action learning" is derived from the Greek word meaning action, from which the words ``practice" and ``practical" came as well. Project management follows a closely related sort of action cycle that serves a concurrent purpose as projects of management learning (Cavaleri 2000). On the other hand, Argyris (1989) notes the significance of organisational defensive routines and considers their implications for strategy implementation. He proposes that defensive routines exist in virtually all organisations. These routines limit learning and often lead to perceptual gaps and other differences in understanding between organisational members. These differences can hamper strategy implementation efforts. According to Argyris (1989), group exercise is based on the "Human Theory of Control" and the organisational defensive routines are particularly salient when there are limitations in organisational learning and can lead to harmful gaps and inconsistencies in the strategy process.

Grundy (2001) agrees that there is an outcome, throughout the successful or failed implementation of a project, where a great deal of learning can be gained in many forms, such as the feasibility of achieving project goals, the project process, capability and effectiveness

of the project team, the organisation itself and the external environment of the project. The organisation must create lessons-learned files from the debriefing sessions at the end of each project. Case studies on each project, discussing mistakes made and knowledge learned, are critical so that mistakes are not repeated (Kerzner 2001). The storage of such knowledge probably would be through knowledge management systems using information technology models (Vassilopoulos 2004). In the study by Maylor (2001), it was found that the benefits of treating projects as a business process were that it can be improved and a great amount is learned each time the project is run. Treating a project as a process, in the traditional operations sense of a conversion process, leads to a search for similarities rather than differences between processes. Joia (2000) stated that the role of knowledge in project management is reflected to intellectual capital with a link to the company's shareholder value. Knowledge in organisations can be found both inside employees' heads (tacit knowledge) and in documents (explicit knowledge). Figure 4.7.5 shows the formation of these knowledge approaches. According to Maytorena et al (2007), there appears to be a complete lack of connection with the literature on knowledge management as a tool for capturing organisational learning from projects.

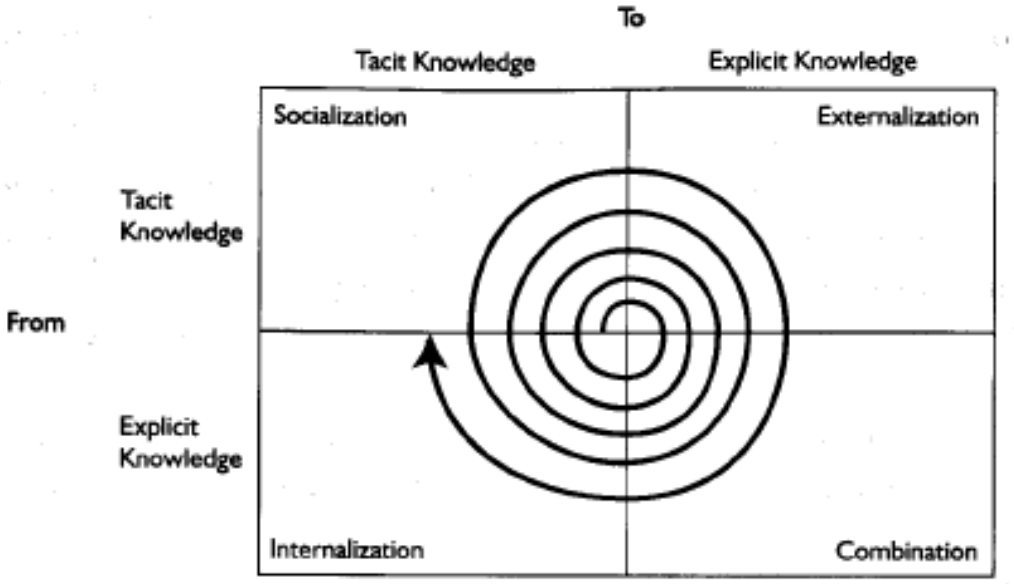

Figure 4.7.5 Organisational knowledge formation (Mintzberg et al 1998)

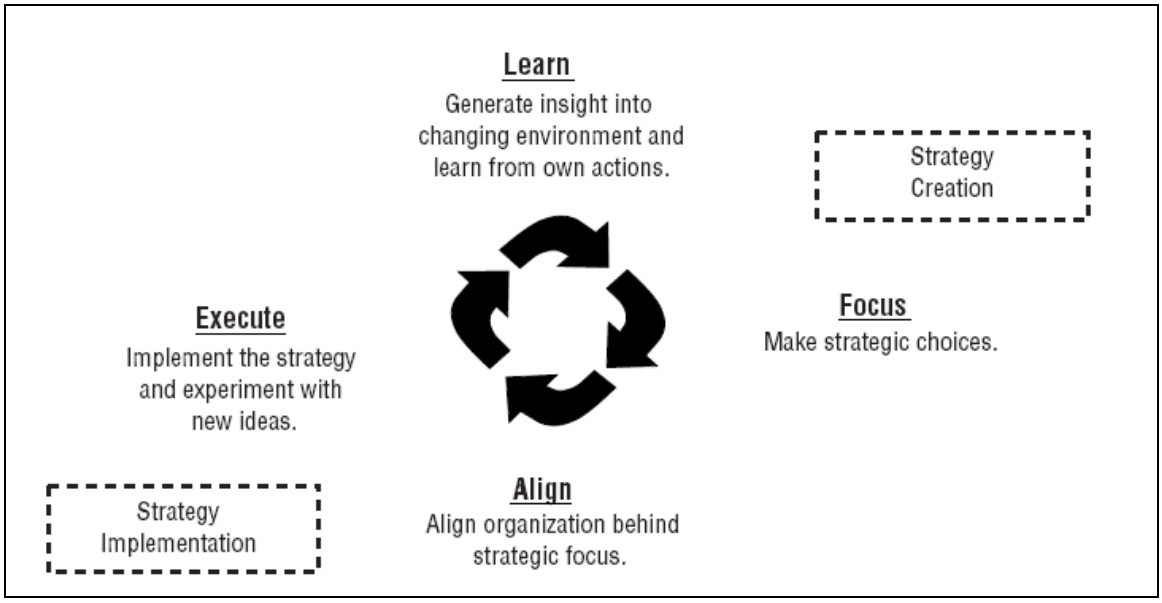

Figure 4.7.6 Strategic Learning process (Pietersen 2002)

Pietersen (2002) identified four linked action steps of a strategic Learning processes - learn, focus, align, and execute, which build on one another and are repeated in a continuous cycle of learning and renewal, as shown in Figure 4.7.6.

Kotnour (2000), in his research concluded, that project managers do conduct learning activities. Lessons learned, use and formality, however, varies as defined by the type of tasks "lessons learned" are produced by, the time when "lessons learned" are produced, and the method used to identify what to produce a "lesson learned". Project organisations should focus on building knowledge, as increased knowledge is associated with increased project performance. Eppinger (2003) identified three types of project performance in relation to project organisations. These are Influence, Matrix and Dedicated and most real projects are a mix of these "pure" forms. To support knowledge building, an organisation must focus organisational learning on the learning both within and between projects. The learning process also needs to be supported by an environment that allows team members to admit mistakes and openly discuss solutions to problems.

Communication and management, across organisational boundaries, are important to successful strategy execution. Transferring knowledge and achieving coordination across operating units, within a business, are vital to strategic success. Information sharing and integration methods can increase the flexibility of structure and the organisation's ability to respond to implementation related problems (Hrebiniak 2006). Grinyer et al (1978) argued that the use of informal channels is associated with high performance.

According to Dillard et al (2007), information processing, as a primary organisational activity, is associated with project cost and duration. Yet, the more information processing a project requires the more costly and lengthy the project becomes. The results from the study by Olsson (2005) showed that flexibility was used in all phases of the projects, particularly during the planning phase, but contractors, overall, were negative in such activities.

The explicit definition of strategy is also of utmost importance when an organisation faces significant changes in its business environment and business logic (Tikkanenet al 2006). Sharing the knowledge that is developed across projects increases an organisation's knowledge. Each project has different plans, results, problems, and successes that offer an opportunity to learn by example. Project knowledge is created from and during the experiences of people completing the project. The greater the learning activities occurring during a project, the greater the knowledge created.

An important note from Kerzner (2003) is that a handicap of the informal project management approach is that many team members lack training and development in project management concepts. Without this type of knowledge and training, it is difficult for members to participate in critical projects. This is a very important factor that influencing indirectly, and through team members' ignorance, the unfailing implementation of a project. Knutson et al (2001) argued that the investment in education of project management typically has enormous payback. Newell et al (2004) suggested that the social capital of project team members is organisationally important. This is established by external bridging and internal bonding of the social capital of the organisation's project team members, through knowledge integration, that allows access to relevant and important knowledge for the projects.

A research was conducted by Jugdev (2006) and supported by Athabasca University, San Jose´ State University, and a grant from the Social Sciences and Research Council of Canada, an online survey with North American Project Management Institute members. This research was done to improve understanding of project management elements as strategic assets to support management practices. Exploratory factor analysis was used to examine the independent variables (tangible and intangible assets) and dependent variables (VRIO characteristics) of the project management process. These resources involve codified and tacit knowledge, such as strategic assets (e.g. Intellectual property rights, reputation, brand, culture, and tacit knowledge), which contribute to an organisation's competitive advantage. The findings suggest that over and above the need for codified practices, a company should also consider intangible assets. These are important since, unlike codified practices, they are not readily transferable or copied and, therefore, can be the source of a competitive

advantage. There is a need for an increased focus on knowledge sharing. Knowledge sharing emerged as a strong factor, both for codified practices and for tacit knowledge. Companies need to invest in assessing and improving their knowledge-based assets. With projects increasingly being used to conduct work at both the operational and strategic levels of an organisation, companies need to look to their project management processes for sources of competitive advantage. In conclusion, the factors that emerged, and are reflected by the use of tangible project management practices, were project management maturity, the sharing know-how, training and development and sharing know-what.

Flexibility, creativity and innovation

The strategic emphasis on operational flexibility is positively associated with operational success in projects implementation. Designing and evaluating flexible strategies in structured ways can improve project planning and performance, compared to tacit and intuitive tools and methods (Ford et al 2006). In an empirical investigation on how organisational and strategic variables are related to success in technology implementation, by Stock et al (2001), both culture and strategy variables are significantly related to the implementation of technology, but the relationships are dissimilar for different types of implementation outcomes. On the other hand, Berry et al (1998) noted that the prominence given by senior management to technology, within the organisation, would have inherent implications for the management practice and culture of the company. This, in turn, will determine whether technological considerations implicitly drive business activities, or whether they are subsumed within corporate planning activities.

Tinnirello (2001) argued that even the well-planned project could be derailed. Sometimes the factors lie beyond the ability of the project team to control, such as a sudden downsizing of budget or staff, or a last-minute “critical” business requirement that must be accommodated. On the other hand, Olsson (2005) discovered a paradoxical approach to project flexibility that is frequently used yet rarely prepared for. In general, flexibility has a value for the stakeholders that benefit from changes and late locking of projects, and it is a cost for those who have to adopt. Stakeholder incentives, related to the direct project outcome, increase the likelihood that flexibility is looked upon negatively. One key purpose of flexibility strategies is to achieve elasticity without creating scope changes in the project. On the other hand, the key insight of this approach is that uncertainty or volatility of project requirements can actually increase the value of a project, as long as flexibility is preserved and resources are irreversibly not committed (Miller et al 2001).

Recently, many organisations adopted the “Management by Projects” management form. This is a new managerial approach of all ongoing operations, which are redefined, organized and perceived as projects. Grant et al (2006) argued that project management has frequently been defined in contrast to operations management, which has long proven essential to success in manufacturing as well. In order to achieve such form, the organisational culture must be close to the project management culture (PMI 2004). In addition, Barnes (2001) supported the argument that organisation’s operations play the leading role in the development of its corporate strategy.

Creativity is another factor that positively influences the organisational project management context. The meaning includes 'imagination' and 'originality'. Creativity comes from people, although it may be the resources of the business or society, which enables the original, imaginative solution to a problem to become something that can be implemented. It is individual creativity that is harnessed to achieve specific corporate objectives and to allow the company to innovate. Innovation is the function that facilitates a company to grow and profit from opportunities, which arise from the changing world. In addition, another function, which has already been mentioned, is required adaptability. This is the ability to adjust to new circumstances, particularly to avoid threats arising from the changing environment (Hussey 1998). To achieve superior innovation, a company must build skills in basic and applied research, design good processes for managing development projects and achieve close integration between the different functions of the organisation, primarily through the adoption of cross-functional product development teams and partly parallel development processes (Hill et al 2001). Finally, general management knowledge has influence variables, such as financial, procurement, contacts, manufacturing, strategic planning, personnel administration, health and safety, technology, and individual departmental functions (PMI 2004).

In particular, higher levels of technology immaturity and resource requirements are associated with lower levels of operational success and higher levels of positive organisational change are related to higher levels of operational benefits. The results of this study suggest that both cultures and strategy are linked to different outcomes that are related to projects implementation.

In this sense, the integration in the proposed model of the intervening impact (structures and the life cycles, two fundamental variables in project management) will be a first step for a real theoretical improvement to this topic (Belout 1998). Partington (2004), by using the interpretive approach known as phonomyography, studied the management of fifteen strategic programs spread over seven industry sectors. It found six influencing variables – a sense of

ownership/mission, political awareness, relationship development, strategic influence, interpersonal assessment, and action orientation. Miller et al (2004) identified three important factors of managerial action affecting the strategy implementation processes, the level of readiness, experience and achievement capability. These factors not only group together, but also include the two pivotal variables of acceptability and priority that link with achievement.

Uncertainty urgency and unexpectedness as factors

Srivannaboon (2004) created six propositions which drive the focus and content of each project management element in relation to cost, competition and differentiation strategies. In addition, project management elements may impact business strategy, based on operating conditions of reviewed projects. There is a huge range of uncertainties faced by businesses and their projects today. Wilson 2003) suggested the need for a resilient strategy, one capable of dealing with the uncertainties of the future (based on scenario-specific settings) and able to determine the most resilient option for each strategic element. Strategy is a subtle art, as it has no option but to deal with uncertainty. These arise from a multitude of sources (including those internal or external to the business), with a range of technical, management, operational, and commercial issues. Some uncertainty is related to the actual work to be done. Other uncertainties arise from the people involved in the work. Another source is external factors outside the control of the project, including the environment in which the project is undertaken, market conditions, actions of competitors, changing exchange rates or inflation rates, or weather conditions. Then there are the other stakeholders in the project and the business, all of whom, by definition, are able to influence performance, and may, therefore, introduce uncertainties into the equation. A projects uncertainty is inherent in the nature of the project, and it is also desirable since uncertainty is closely related to reward. Uncertainty becomes risk through its interaction with objectives, with a risk being defined as any uncertainty that, if it occurs, would affect one or more objectives. This effect, however, can be either positive or negative, leading to the suggestion that the term ‘‘risk" could encompass both opportunities (uncertainties with positive effects on objectives) and threats (uncertainties with negative effects on objectives).

Getto et al (1999) argued that the risk analysis cycle focuses on the continual identification of new risks and on revisiting known risks, analyzing their impact on the project's goals, and defining and performing risk control activities. Since goal-orientation is among risk management core principles, the risk analysis cycle also encompasses continuous feedback to, and review of, project goals. There are clear benefits in a common process to handle both types of uncertainty, an upside as well as a downside, although this is likely to require some

changes to the current approach to risk management. Management of uncertainty is one of the basic issues in the strategy theory. Uncertain future phenomena, which are unpredictable, occur outside the project and inside the organisation, and cause trouble, crisis or loss in the course of implementing a program. Projects in progress are facing crises triggered by changes in government policies or regulations, emergence of alternative technologies, changes in the competitive market, economic fluctuation, etc. Moreover, inside the organisation, development projects, with complicated requirements or systems, often cause delays in the schedule or budget overruns, due to a shortage of information and lack of technologies or knowledge. Since project values change according to changes in circumstances, it is critical to maintain the mission value for a program period by modifying schemes, systems or alternative combination (PMCC 2001).

Unexpected urgent projects can arise because of a new business opportunity, or for protection against a sudden threat, or, more obviously, to restore a severely damaged asset. The common element throughout unexpected projects is surprise. Unexpected means that instant action is needed to avoid an immediate threat, or the speed of work should depend on the economic or social value of time. On the other hand, if it means working as fast as possible, it has the cost as a factor in decisions (Wearne 2006). The conclusion of Wearne's (2006) study of unexpected events viewed as problematic was that organisations need fluid decision-making and quick, accurate feedback to confront unexpected problems that threaten their business plans. A single action can be taken, feedback can be received, and the process can continue until the organisation converges on the pattern that becomes its strategy (Mintzberg 1998). In the cases studied, these problems were anticipated by early involvement of stakeholders, their representatives and the media, and by establishing steering committees or other ways of consulting and committing them on what is to be done, what are the priorities, and who is to be responsible for "normal" working on the completion of a temporary project. Better practice in such cases is the common need for face-to-face communication. There were cases where the projects were managed closer than usual in their organisations for greater results. For instance, by achieving rapid vertical (upwards through company hierarchy) communication, defining responsibilities, confidence in accepting oral instructions, dedication of project teams, and selection of consultants and contractors based upon capacity. Organisational relationships and communications between all parties might be expected to be greater when organisations are put together quickly and immediate decisions are needed for a project. The differences were in the concentration of authority and leadership dedicated to the project, linking the sponsors, other stakeholders and project teams, the simultaneous involvement of all levels of management in decision-making, reliance on oral commitments, making maximum use of all usable resources, and the immediate acceptance of cost uncertainty.

5. Conceptual Framework

The main hypothesis from the document was the argument that corporate strategy is created from an organisation's mission, goals, and objectives. The main question was how this strategy is being linked with implementation and results? The strategic questions were formulated according to the relationship framework and identification of links between business strategy and project management context. Finally, it was proposed that the investigation of the influences of key strategic factors on this relationship, and the possibility of construction of a strategic linking model, as a consequence of this research. Subsequently, the research questions were formulated according to the same notion, of which are the key links between strategies and project management context and the identification of the affects of those influencing factors in organisational strategy and project management context.

The identification of the links established in the conceptual framework flow is between the phases of the conceptual framework and the influencing factors. The conceptual framework is formulated and presented in figure 5.1.

The final formulation of the conceptual framework will be revisited after the completion and the conclusion results from document three. The questionnaire of the quantitative approach in document four will be based on the results from literature review and the conclusions of document three.

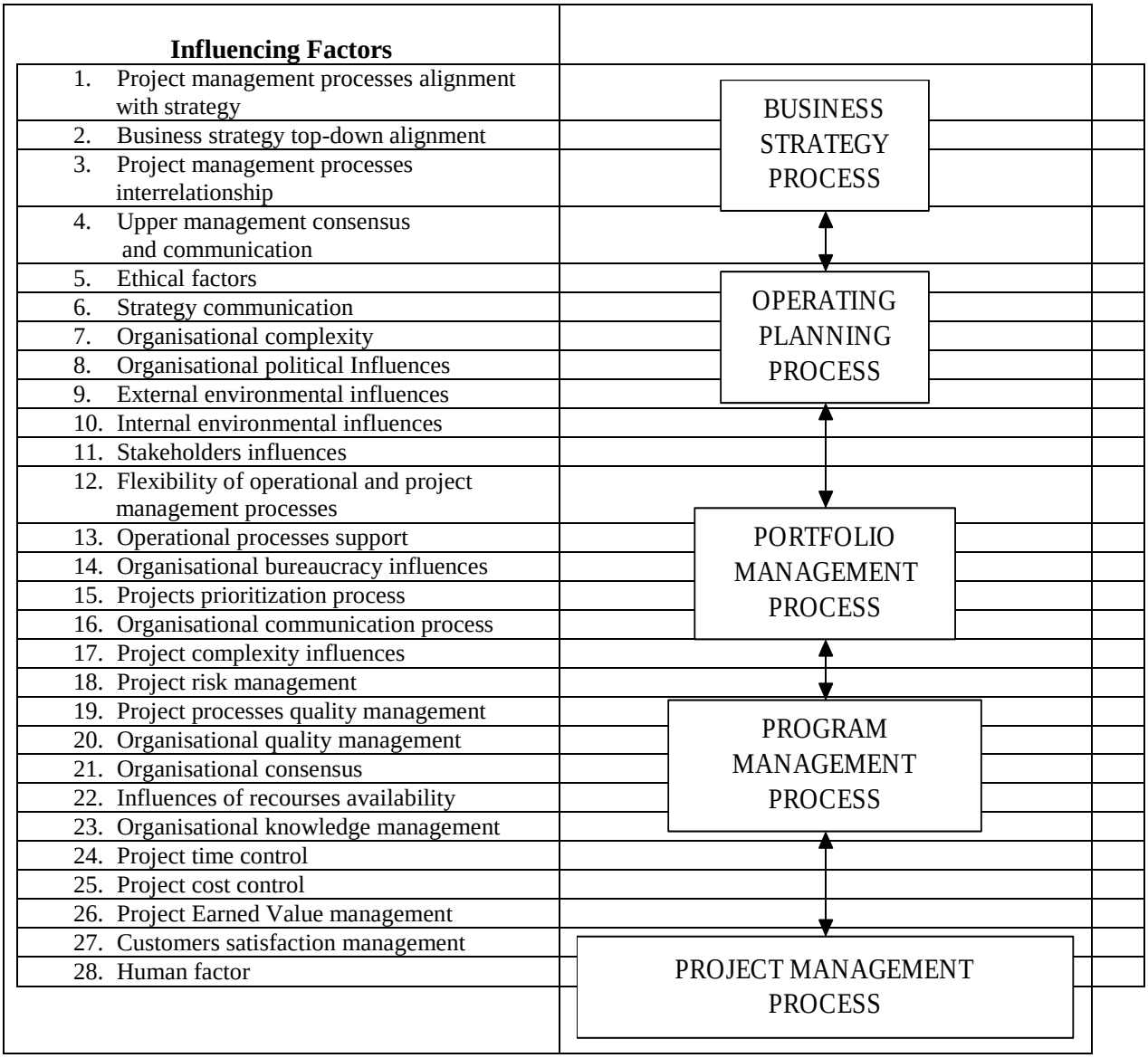

Figure 5.1 Conceptual framework of strategy and project management influencing factors

6. Conclusions

In this journey of an extensive literature review, a great amount of literature was found, which is written concerned to organisational implementation of business strategy through project management. But there were little of which acknowledged or were applicable directly in today's projects' requirements. There were also found many references to project strategy, but generally this was an emphasis on tactical implementation elements, tools and techniques. The findings from the literature review, concerning the overall conceptual framework, evidences a general disconnection between the business strategy objectives and project management in reflection to the project management implementation processes.

Strategy intentions and links

According to the review in history of strategy, provided a great emphasis on the significance of clear vision and mission connected directly based on the art of management, planning, implementation and evaluation. Defining a corporate mission and vision is the easy part (PMI 2006). Achieving that mission and vision requires fortitude and industrialism (Vassilopoulos 2004). Most dominant intents in the history of organisational strategy was those of Porter's (1985), competitive advantage in the market places through cost leadership, differentiation, cost focus, differentiation focus in reflection of Mintzberg's (1998) characteristics of plan, pattern, position, perspective and ploy. In addition, the latest researches revealed two types of strategies in the modern organisational world. These were the product markets and competition strategies. The main notion of the strategic concept was based on the assessment of where an organisation is and where it wants to go. The journey of the organisation through the variable of time of strategy implementation was linked with most of the organisational processes, influencing and being influenced by many critical factors.

Throughout this study, the definition of organisational strategy as a process as a flexible and qualitative concept can be concluded with the following perception statement: "*Strategy is the organisational activity of formulating, managing and implementing any future business decisions and directions, and is based on the principles of flexibility, quality by engaging all required operational processes and factors in the organisational context*" (Vassilopoulos 2004).

Under the light of this argument, the strategy implementation process is formulated through the development of a conceptual framework which is engaging all those reflective factors of the organisational context. Influencing factors were appeared in the picture of implementation which engaged by successful passing or bottlenecking processes. Links were established in a

wide spectrum of formation with functional strategies through comprehensible and controllable to be unpredictable and confusing rational and natural fields. As a result of this literature review, was also that many authors are seeing complexity as a critical factor which is influencing the strategy implementation.

Strategic typologies and the ten schools of strategy found to support this transformation through past years, until now. Prescriptive and descriptive schools of strategy were described based on time, with the most dominant the prescriptive positioning in contrast to descriptive schools of configuration, learning and power (Mintzberg 1998). Organisational structures found to be influencing strategy implementation through environmental turbulences and emergencies. The main organisational structures found were: functional, matrix and projectized. The most dominant structure was those projectized, which was suggested by many authors as the most appropriate in such a complex strategic implementation context. In addition, there are internal and external strategic views of business models. Each of them was influenced and found to be reflected by internal and external factors of business context (Winter 2003). The only lesson organisations could learn from the strategy model-makers was the "practise of what I do, and not what I preach". By observing the strategy, model-makers and organisations could create their own formula for success. Then strategy could become a connecting process which links continuous revolution and constant evolution. It is this process which enables organisations to deliver leadership through new market values. As Chaharbaghi (1998) stated competitive survival basically demands this process to be in place at all times; otherwise, organisations lose their ability to survive. As a result, failure becomes inevitable, it is only a matter of time.

Creativity, clear vision and innovation were found as the three critical parameters in the suggested adjustment of strategy implementation and Total Quality Management (TQM) together with Business Processes Reengineering (BPR). In 210 B.C., Petronius Arbiter wrote, "We trained hard, but it seemed that every time we were beginning to form up in teams, we would be reorganized." Organisations tend to meet any new situation by reorganizing (Charvat 2003). Operating plans, unplanned, opportunistic and systematic planned are directed by strategic intents and factors (Hussey 1998). It was found that there were many urgent strategic requirements for changes in planning based on emergent strategies. Two types of influencing factors were found. These were tangible and intangible, internal and external factors. Uncertainty was one of the critical factors which affecting the operating planning process.

Project driven organisation

The transition of organisation from the classical operation to a project-driven model has been strictly proposed by Shenhar (2005). Schools, waves and intentions were categorized according to the global view of strategy implementation. From a strategic viewpoint, there were those who did not mention project management at all in the formulation and execution of strategic objectives. Others dealt attention to portfolios and programme management as a basic success factor. Some of them were aligned strategy with project management context as well. Certain researchers perceived project management process as the core of conversation research and actions while others had the entire context of project management as a sequence of implementation of strategy.

Project management context

Portfolio management found to be linked directly with strategy and operating plans but also with project management processes. This connection has contradictory influences and exchanges of valuable information for the process of projects and programs selection. Portfolio management found to be influenced by the current status of running planned programs and projects and formulating the selection process accordingly. Qualitative communication of that information required and necessitated in this linkage. In line, program management was characterized as multi-project management process. Prioritization and communication found as the most important influencing factors. The next link was established with project management process. The question was how the project management is anticipating strategic changes? For many organisations the various forms of development projects were the central vehicles to implement the intended strategies.

All project management areas were linked and influencing and in opposite, being influenced by the previous linked elements. Depends on the type of the project, there were different approaches adopted by project management processes by establishing different links between them. Those basic links and influencing factors defined from literature review. Different parameters, variables and factors were created depending on types of projects. A multiple link phenomenon between those contexts was found as well. There was an important practice of flexibility in overlapping methodology between the projects' phases. An important emphasis was given to the initiation phases of the project. This was happened where the initial but important requirements of the project were defined. In turn all project management phases were found as important as well. Stage gates, found as a useful process for quality conformance with requirements between project's steps during implementation.

Operational and functional processes found to be in line and supporting project management processes. It would be helpful in this point to note, that the project management industry

would adopt uniform and distinctive labels representing the difference between on-going corporate operations management on the one hand and project management on the other. Project management methodologies have very few authors involved and support flexibility of appliances. Most of authors were found witting for project management knowledge areas and processes mentioning portfolio and program management as pre-steps and behind of project management context.

Today, a very critical role is playing the strategic project management. Organisational strategy and project context strategy found to have a direct link. They are shared the same influencing factors reflecting each other and affecting the main organisational implementation context accordingly. The Project Management Office (PMO) is playing a key role for project management strategy formulation and implementation as well. It is integrating the management three portfolio, program and project including operating plans processes and connecting them to organisational strategy.

Control and measurement found to play an important role and were necessitated in project management processes. In addition, Balanced Score Cards (BSC) was suggested by many authors, as an important tool of qualitative measurement of implementation success. Project performance management clearly found to need an improvement in the light of the movement from conformance-based measures and the popularity of approaches such as the balanced scorecard (Kaplan et al 1992).

In organisational strategy alignment from top down approach, found that business plans were related to program plans. The Strategic fit was performed with vertical alignment and functional integration with horizontal alignment. In addition, from human resources based views, upper management suggested that should have communication links through middle and project team members in reflection to other departmental staffs.

Influencing Factors

Organisational complexity revealed as affecting this alignment thus, requires more upper management participation. This was affecting the whole strategic implementation context. Most of authors suggested that in order to have better strategy alignment and in turn successful implementations, re-engineering, innovation and integration together with continues improvement and flexibility should be the organisational first strategic target.

Influencing factors found, categorized by using a high level approach, as organisational structure, upper management, failures and success, communication and consensus, human and

culture, stakeholders and sponsors, environmental, ethical, project maturity, knowledge, learning and discourse factors.

Earned value and innovation, creativity and flexibility were perceived as tools and processes of control and improvement. The strategic implementation context found to be influenced by the internal and external organisational political dimension. Organisational culture perceived as another important factor. Internal and external environmental factors were influencing the effectiveness of functional processes and procedures which they in turn influencing the implementation context. Processes, people, technology, learning, allocation of resources and control systems were perceived such factors.

Upper management consensus and communication with functional and operational organisational levels revealed as a critical factor as well. Other factors were found in projects and programs interdependences, such as clear identification of initial requirements, bureaucracy, flexibility of decisions, organisational functions and departmental processes performance. The iron triangle of project aspects or factors, time, cost and quality (or performance) and additionally Mintzberg's (1998) know how, predefined as the basic control pointer of the implementation process. Its status and level of results found to be influencing the business strategy having a response feedback as well. It was also referred by many authors that human and culture factors are directly connected with all elements of strategic implementation process. This is including top down communication through formal or informal channels and by adapting the information flow by making a sharing of knowledge. It also includes departmental synergies across the organisational context. Motivation, empowerment and commitment found as basic characteristics of strategic project team manipulation. In the same way, stakeholders and sponsors perceived as key factors but also as connectors required to identify them from the beginning of a program or a project.

On the other hand, risk management and Risk Identification Process (RIP) found as a valuable process which identifies uncertainties, risks and possible implications, interconnected and interrelated with all elements of strategic implementation context.

Finally, Earned Value (EV) found as a valuable process for the identification during time the current cost status related to strategy implementation success. Finally, the main important factors, knowledge and learning that widely debated and in an extensive approach concluded that it is important to store and use knowledge of past success of failure, in line with new innovative trends. Qualitative education of organisational human resources suggested as a requirement and success factor as well.

Initial assumptions and creativity for the development of the initial "Project Management Strategy Implementation Model (PMSIM)"

Englund (1999) stressed the essential necessity of making a model for linking projects to strategy and to support it with authenticity and integrity. Linking project management context with business strategy means to connect and align with double-jointed paths and mediums and establish a communication line and a flexible reflection between them. As strategy formulation is not a static process requires continues feedback from the project management context. This is based in the rule of continues improvement quality concepts. This reflection is acting vice versa and influence is (or should be) continuously.

There are many factors and variables that prescribe this type of linkage. The conclusion is that there is a need to shape and socialize this linkage in a flexible way and create a tailor made model based on specific requirement and demands in every type of organisation. The formulation and construction of such strategy model will be based on the reflective links and variables of organisational strategy and project management context, but also on the theoretical findings according to previous literature review conclusions. There should be an identification of the influencing regulative variables and definition of those substantial links. The flexibility of such a model in a business organisation context means to modulate and link of project management and business strategy contexts' components in effective and operational way. In addition it is required to establish continuous improvement of model's processes and re-adaptation of their links according to possible alternations of business strategy and project management environment.

In the reviewed literature were found various proposals to use flexible management processes with explicitly defined rules and procedures as a source of success with multiple projects. Some of the papers suggested that utilization of specific methods and tools are correlating with superior performance in multi-project management. Many from the authors have stressed the critical matter of linking projects and their management to strategy and proposed different models describing how the management processes at project and multi-project levels can be integrated with the organisational strategy management process. Most of the models and frameworks formally presented in the literature were theoretical constructions to solve or present managerial problems with multiple projects.

Project Management Strategy Implementation Model (PMSIM)

The strategic consensus literature gives a broad range of perspectives of the implementation efforts. More realistic appears to be the view that the consensus performance relationship in

implementation is moderated by numerous organisational factors. The main suggestion was to integrate the project and business strategy contexts, based notably on their direct associations in reflection to their influencing factors. The proposed model is a merge of influencing factors and project management context as they identified from the literature review findings. This model is demonstrated in figure 6.1.

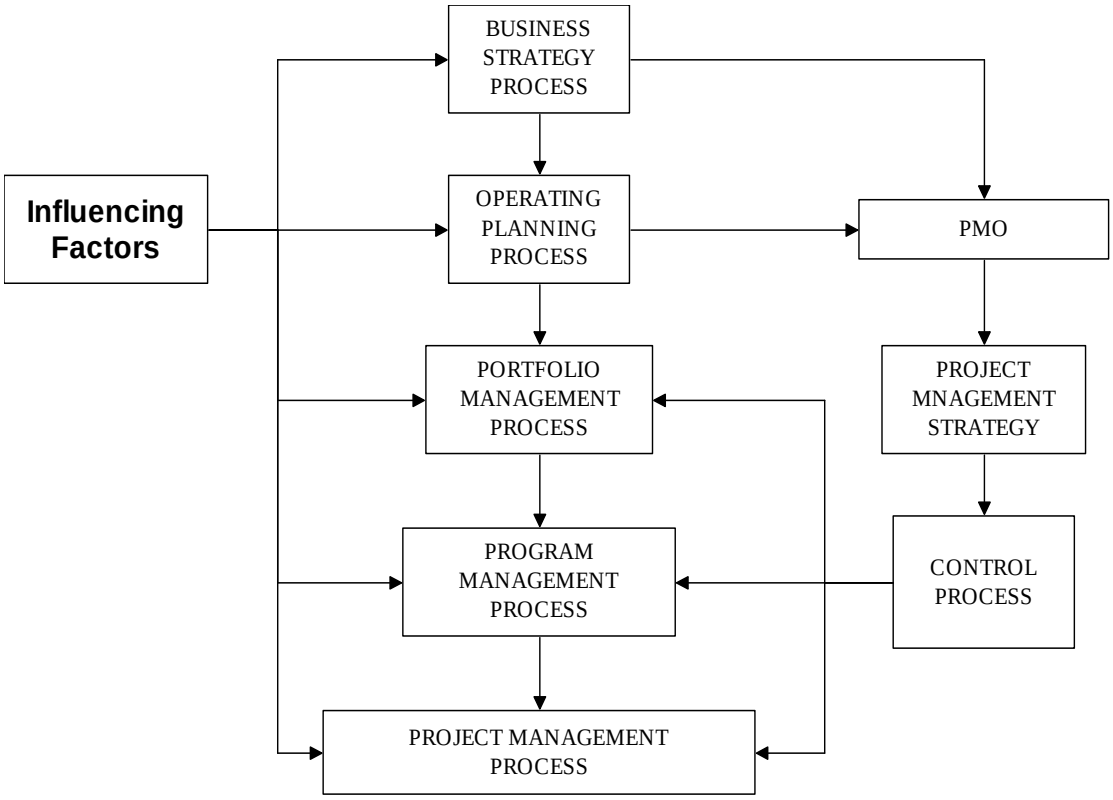

Figure 6.1 Project Management Strategy Implementation Model (PMSIM) – Communication Influential Links

The project management context in the conceptual framework can be perceived as a system model. There will be always unexpected situations and factors from internal or external environments producing turbulences and influencing such a system, and should be anticipated. A link in this case, has the meaning of a connection and communication of information through input and output between the model elements, from one process to another. Factors are affecting continuously and directly the system. External regulation of that influence can be applied through changes and adaptations. Most of the influence factors have additional radical links with other context factors and being influenced by them accordingly. In table 6.1 are illustrated those influence factors.

Influence Factors
Organisational strategy and operating plans
Portfolio and Program Management and Projects Prioritisation
Upper management consensus and influences
Organisational culture
Organisational Politics
Organisational knowledge management
Human Factor
Organisational Quality
Organisational bureaucracy
Operational processes support
External environment influences
Ethical factors
Organisational complexity
Organisational communication
Project management process
Information Technology
Stakeholders
Project Earned Value management
Project Management Flexibility
Project time and cost control
Risk management
Project Management Office (PMO)
Project management strategy
Organisational maturity on project management

Table 6.1 Influencing factors

Many researchers and practitioners were found considering performance, effectiveness and success as synonyms. This confusion in the definition of these concepts was widely reported in most organisational theories as well. One of the general weaknesses of literature normative theory found was that it was treating failures to act according to the theory as aberrations. It was offered no insight into why the aberration has occurred or how to correct it other than to say ‘do it right next time' (Sauer 2007). Many of project management theories appeared to work more or less well for the domain they address but to relate not at all to many other management theories. Sauer (2007) found different types of theory and in front of the experience of management research in general suggested that it is unlikely a research that is positive rather than normative it is easily able to develop a single theory.

Ultimately, the question is that whether it is better to work on a normative theories that will be valued by practitioners because it provides a clear and complete picture of what they should do or on positive theory that accurately reflects what actually happens and what

actually makes an obvious distinction. Conventional project management approach rightfully expects a world of order and a predictable environment in which one can set and deliver a clear set of constant targets in a defined manner. Today's complex society is characterized by open systems, chaos, self organisation and interdependence. Without a proper perspective on change as a phenomenon we cannot understand what possible role project management can play in the complex societies of the 21st Century and how the less advanced societies can be helped in their quest to achieve accelerated economic and social progress (Jaafari 2003). It might be legitimately defensible, that sometimes there is a need for an organisation to push forward in constitutional changes in its operational structure, in order to adapt more respectably to the intended link-model. This is a dilemma, a business strategic quandary which must be assessed in contradiction with future benefits such a strategic intension may bring about.

Next step forward

Robson (1993) argues that there are three traditional research strategies for real world social research: experiment, survey and case study. The next step of this research will be according to the requirements of the proposed link model. The structure of interviews and surveys will be based on the factors with inference and conjecture from the literature review findings. But it will also be influenced from the intension of the wanting model creativity. The preconceived schemes borrowed from Grounded Theory fit properly with the main purposes of the exploratory fieldwork of this study. In such way, Grounded Theory plays a role in identifying and defining the meaning of empirical elements and findings and provides practical support to this specific conceptual framework. Consequently, interviews aiming to verify those influencing factors, links and variables identified from the literature review as a sufficient set of elements of the conceptual framework, as well as defining and putting them in assessment in the real business world environment.

References

Allio Michael, (2005), A short practical guide to implementing-strategy, Journal of Business Strategy, Vol, 26 No. 4 2005. pp, 12-21, -C' Emerald Group Publishing Limited. ISSN 0275-6668.

Anderson Erling, (2003), Understanding Your Project Organisation Character, PMI Journal Vol 34, No 4.

Anderson David, Merna Tony, (2003), Project Management Strategy- project management represented, International Journal of Project Management 21 (2003) 387–393

Argyris Chris, (1989), Strategy Implementation: An Experience in Learning, Organisational Dynamics 18 (Autumn 1989).

Artto Karlos, Wikstro Kim, (2005), What is project business, International Journal of Project Management 23 (2005) 343–353.

Artto, K.A. J-M. Lehtonen and J. Saranen. (2001). Managing projects front-end: Incorporating a strategic early review to project management with simulation. International Journal of Project Management.

Asrilhanta Boris, Dysonb Robert, Meadowsb Maureen, (2007), On the strategic project management process in the UK upstream oil and gas sector, Omega 35 (2007) 89 – 103.

Aubry Monique, Hobbs Brian, Thuillier Denis, (2007), A new framework for understanding organisational project management through the PMO, International Journal of Project Management.

Avisona David, Jonesb Jill, Powellc Philip, Wilsond David, (2004), Using and validating the strategic alignment model, Journal of Strategic Information Systems 13 (2004) 223–246.

Bamford James, Gomes-Cassere Benjamin, Robinson Michael, (2003), Mastering Alliance Strategy A Comprehensive Guide to Design, Management, and Organisation, John Wiley & Sons, Inc.

Bantel Karen, (1997), Performance in adolescent, technology-based firms Product strategy implementation and synergy, The Journal of High Technology Management Research, Volume 8, Number 2, pages 243-262, ISSN: 1047-8310.

Barnes David, (2001), Research methods for the empirical investigation of the process of formation of operations strategy, International Journal of Operations & Production Management,Vol. 21 No. 8, 2001, pp. 1076-1095.

Barton Leonard, Dorothy, and Deschamps, Isabelle, (1988), Managerial Influence in the Implementation of New Technology, Management Science 34 - 1252–1265.

Belout Adnane, (1998), Effects of human resource management on project effectiveness and success Toward a new conceptual framework, Internattonal Journal of Project Management Vol. 16, No. 1, pp. 21-26, 1998.

Benko Cathle, McFarlan Warren, (2003), Connecting the Dots: Aligning Projects with Objectives in Unpredictable Times, Harvard Business School Publishing, ISBN:1578518776

Bennet, P. Lientz, Kathryn P. Rea. (1998). Project Management for the 21st Century. Second Edition. Academic Press. ISBN: 0-12-449966-X.

Benson Robert, Bugnitz Thomas, Walton William, (2004), rom Business Strategy to IT Action Right Decisions for a Better Bottom Line, Wiley, ISBN 0-471-49191-8.

Berry Maureen, Taggart James, (1998), Combining technology and corporate strategy in small high tech firms, Research Policy 26 1998.883–895.

Blomquist Tomas, Müller Ralf, (2006), Practices, Roles, and Responsibilities of Middle Managers in Program and Portfolio Management, PMI Journal Vol 37, No 1.

Boar, B. (2001) The Art of Strategic Planning for Information Technology – 2nd Edition, Wiley, Chichester.

Boecker, Warren, (1989), Strategic Change: The Effects of Founding and History, Academy of Management Journal 32 - 489–515.

Bonoma, Thomas V., and Crittenden, Victoria L, (1988), Managing Marketing Implementation, Sloan Management Review 29 - 7–14.

Bourgeois L. J, (1980), Performance and Consensus, Strategic Management Journal 1 (July–September 1980): 227–248.

Bourgeois, L. J., and Brodwin, David R, (1984), Strategic Implementation: Five Approaches to an Elusive Phenomenon., Strategic Management Journal 5 - 241–264.

Bourne Lynda, Walker Derek H. T., (2006), Visualizing Stakeholder Influence Two Australian Examples, PMI Journal Vol 37, No 1.

Browna Andrew, Adamsb John, (2000), Measuring the effect of project management on construction outputs a new approach, International Journal of Project Management 18 (2000) 327±335.

Bryde David James, Robinson Lynne, (2007), The relationship between total quality management and the focus of project management practices, The TQM Magazine
Vol. 19 No. 1, 2007 pp. 50-61.

Bryde David, (1997), Underpinning modern project management with TQM principles, The TQM Magazine Volume 9 · Number 3 · 1997 · pp. 231–238 ©MCB University Press · ISSN 0954-478X.

Bryson, John M., and Bromiley, Philip, (1993), Critical Factors Affecting the Planning and Implementation of Major Projects, Strategic Management Journal 14 - 319–337.

BS ISO 10006, (1995), Quality Management and Guidelines to
Quality in Project Management, BS ISO 10006 (BSI, 1995).

BS6079-1996. British Standard 6079:, (1996), Guide to Project Management, UK: British Standard Institute.

Bursic Karen, (1992), Strategies and benefits of the successful use of teams in manufacturing organisations-00156562, IEEE Transactions on Engineering Management, VOL. 39, NO. 3, AUGUST 1992.

Busby J. S., Payne K., (1999), Issues of organisational behaviour in effort estimation for development projects, International Journal of Project Management Vol. 17, No. 5, pp. 293±300, 1999.

Cadle, James & Yeates Donald. (2001). Project Management for Information Systems. Financial Times – Prentice Hall, ISBN: 0 273 65145 5.

Calahan Kevin, (2004), Essentials of Strategic Project Management, Wiley (August 5, 2004)
ISBN-10: 0471649856 -ISBN-13: 978-0471649854.

Cavaleri Steven, Fearon David, (2000), Integrating organisational learning and business praxis - a case for intelligent project Management, The Learning Organisation Volume 7 . Number 5 . 2000 . pp. 251±258.

Cervone Frank, (2006), Project risk management, OCLC Systems & Services:
International digital library perspectives Vol. 22 No. 4, 2006 pp. 256-262.

Chaharbaghi Kazem, Willis Robert, (1998), Strategy the missing link between continuous revolution and constant evolution, International Journal of Operations & Production Management, Vol. 18 No. 9/10, 1998, pp. 1017-1027.

Charvat Jason, (2003), Wiley - Project Management Methodologies, John Wiley & Sons, ISBN 0-471-22178-3.

Chebat Jean-Charles, (1999), Special Issue on Strategy Implementation and Assessment Research Research on Implementation Deserves as Much Attention as Strategy Formulation, Journal of Business Research 45, 107–109 (1999) ISSN 0148-2963.

Chemawat Pankaj, (2002), Competition and business strategy in historical perspective, Business History Review; Spring 2002, Platinnum Full text Periodicals.

Chin Gary, (2004), Agile Project Management; How To Succeed In The Face Of Changing Project Requirements, AMACOM, ISBN:0814471765.

Cicmil Svetlana, (2006), Understanding Project Management Practice Through Interpretative and Critical Research Perspectives, PMI Journal Vol 37, No 2

Cicmil Svetlana, (1997), Critical factors of effective project management, The TQM Magazine Volume 9 · Number 6 · 1997 · pp. 390–396 © MCB UniversityPress · ISSN 0954-478X.

CM Practice Standard Project Charter, (2002), Configuration Management Practice Standard Project Project Charter- article, PMI Project Management Standards Program, PMI.

Cooper Dale, Grey Stephen, Raymond Geoffrey, Walker Phil , (2004), Managing Risks in Large Projects and Complex Procurements, Publisher: Wiley (December 17, 2004), ISBN-10: 0470022817.

Crawford Lynn, (2006), Developing Organisational Project Management Capability: Theory and Practice, PMI Journal Vol 37, No 3.

Crawford Lynn, Hobbs Brian, Turner J. Rodney, (2006), Aligning Capability with Strategy: Categorizing Projects to do the right Projects and to do them Right, PMI Journal Vol 37, No 2.

Crawford Paul, Bryce Paul, (2003), Project monitoring and evaluation a method for enhancing the efficiency and effectiveness of aid project implementation, International Journal of Project Management 21 (2003) 363–373.

Daft, Richard L., and Macintosh, Norman B., (1984), The Nature and Use of Formal Control Systems for Management Control and Strategy Implementation, Journal of Management 10 (1984): 43–66.

Dalgleish Jodie, (2001), Gartner - Case Study Creating An E-Business Vision And Strategy, Gartner Symposioum, Orlando Florida (8-12 October 2001).

Datz Todd, (2003), How to Do It Right - Portfolio Management - portfolio management is key tool, CIO Magazine May 1,2003.

DeRijcke, Jacques, Faes, Wouter, and Vollering, Jan, (1985), Strategy Formulation and Implementation during Purchasing of Production Materials, Journal of Business Research 13 (1985): 19–33.

Dess, Gregory G., (1987), Consensus on Strategy Formulation and Organisational Performance: Competitors in a Fragmented Industry, Strategic Management Journal 8 - 259–277.

Dess, Gregory G., and Origer, Nancy K., (1987), Environment, Structure, and Consensus in Strategy Formulation: A Conceptual Integration., Academy of Management Review 12 - 313–330.

David H.B. Bednall, Michael J. Valos, (2005), Marketing research performance and strategy, International Journal of Productivity and Performance Management Volume: 54 Issue: 5/6 Page: 438 - 450 ISSN: 1741-0401.

DeWoot P., Heyvaert H., and Martou F., (1978), Strategic Management: An Empirical Study of 168 Belgian Firms, International Studies of Management and Organisation 7 (Winter 1977–78): 60–75.

Dietrich Perttu, Lehtonen Pa¨ivi, (2005), Successful management of strategic intentions through multiple projects – Reflections from empirical study, International Journal of Project Management 23 (2005) 386–391.

Dillard John, Nissen E. Mark , (2007), Computational Modeling of Project Organisations Under Stress, PMI Journal Vol 38, No 1.

Dinsmore Paul, Cooke-Davies Terence, (2006), The Right Projects Done Right (A book review by R. Max Wideman), AEW Services, Vancouver, BC.

Dinsmore Paul, Cooke-Davies Terence, (2005), Right Projects Done Right From Business Strategy to Successful Project Implementation, Jossey-Bass (November 4, 2005)
ISBN-10: 0787971138 ISBN-13: 978-0787971137

Dinsmore, Paul C. Jeannette Cabanis-Brewin. (2006). The AMA Handbook of Project Management, Second Edition. AMACOM.

Dobni Brooke, (2003), Creating a strategy implementation environment, Business Horizons / March-April 2003.

Drazin, Robert, Howard, Peter:, (1984), Strategy Implementation: A Technique for Organisational Design., Columbia Journal of World Business 19 - 40–46.

Egelhoff, William G., (1993), Great Strategy or Great Strategy Implementation -Two Ways of Competing in Global Markets, Sloan Management Review 34 (Winter 1993): 37–50.

EIU, Economist Intelligence Unit, (2004), New cross-industry survey from the Economist Intelligence Unit finds strategy execution hampered by poor communication and inadequate management data, Economist Intelligence Unit, November 2004: a survey of 276 senior operations executives frcm North America. Http://www.eiuresources.com/mediadir/default.asp?PR=750000775.

Englund Randall, Graham Robert, (1999), Linking Projects to Strategy, Journal of Product Innovation Management 1999;16:52-64.

Eppinger Steve, (2003), Project Organisation and Architecture, MIT SD Class Five (10/7/03).

Epstein Mark, Manzoni Jean-Francois, (1998), Implementing Corporate Strategy From Tableaux de Bord to Balanced Scorecards, European ManagementJournal,Vol. 16 No. 2 pp. 190-203, 1998.

Eve Anthony, (2007), Development of project management systems, INDUSTRIAL AND COMMERCIAL TRAINING, VOL. 39 NO. 2 2007, pp. 85-90.

Fidler, Lori A., and Johnson, J. David, (1984), Communication and Innovation Implementation., Academy of Management Review 9 -704–711.

Fleming Quentin, Koppelman Joel, (1998), Earned Value Project Management- apowerfull tool, CROSSTALK The Journal of Defense Software Engineering. Issue: July 1998.

Floyd Steven W., and Woolridge Bill, (1992), Managing Strategic Consensus: The Foundation of Effective Implementation, Academy of Management Executive 6 - 27–39.

Floyd, Steven W., and Woolridge, Bill, (1992), Managing Strategic Consensus: The Foundation of Effective Implementation, Academy of Management Executive 6 - 27–39.

Fricke Scott, Shenhar Aaron, (2000), Managing multiple engineering projects in a manufacturing support environment, IEEE Transactions on Engineering Management, VOL. 47, NO. 2, MAY 2000.

Gaddie Shelley , (2003), Enterprise programme management Connecting strategic planning to project delivery, Journal of Facilities Management ISSN: 1472-5967 Year: 2003 Volume: 2 Issue: 2 Page: 177 – 191.

Gaddis Paul, (1959), The project Manager, Harvard Business Review (May-June 1959).

Gaertner, Gregory H., Gaertner, Karen N., and Akinnusi, David M., (1984), Environment, Strategy, and the Implementation of Administrative Change: The Case of Civil Service Reform, Academy of Management Journal 27 (1984): 525–543.

Galliers, R. & Leidner, D.E (1999, 2002) Strategic Information Management: Challenges and Strategies in Managing Information Systems, Editions 2 & 3, Oxford: Butterworth-Heinemann.

Getto Gerhard, Landes Dieter, (1999), Risk Management in Complex Project Organisations, A Godfather-driven Approach, Proceedings of the 30th Annual Project Management Institute 1999 Seminars & SymposiumPhiladelphia, Pennsylvania, USA: Papers Presented October 10 to 16, 1999.

Gordijn Jaap, Akkermans Hans, Hans van Vliet, (2000), Business Modelling is not Process Modelling, Faculty of Sciences, Vuture.net Amsterdam Center of e-Business Research.

Gottschalk Petter, (1999), Implementation of formal plans the case of information technology strategy, Long Range Planning, Vol. 32, No. 3, pp. 362 to 372, 1999.

Govindarajan, Vijay., (1988), A Contingency Approach to Strategy Implementation at the Business Unit Level: Integrating Administrative Mechanisms with Strategy, Academy of Management Journal 31 (4) - 828–853.

Grant Kevin, Pennypacker James, (2006), Project management maturity an assessment of project management capabilities among and between selected industries, IEEE Transactions on Engineering Management, VOL. 53, NO. 1, FEBRUARY 2006.

Gratton Lynda, (1996), The missing link human resources and business strategy, The Antidote Issue 1, Winder Perspectives.

Green Stephen, (1995), Top management support of R&D projects a strategic leadership perspective, IEEE Transactions on Engineering Management, VOL. 42, NO. 3, AUGUST 1995.

Grinyer P., and Norburn D., (1978), Planning for Existing Markets: An Empirical Study., International Studies of Management and Organisation 7 (Winter 1977–78): 99–122.

Grundy Tony, (1998), Strategy implementation and project management, Internattonal Journal of Project Management Vol. 16, No. 1, pp. 43-50, 1998.

Grundy Tony, (2000), Strategic project management and strategic behaviour, International Journal of Project Management 18 (2000) 93±103.

Grundy, Tony. (2001). Strategy Implementation through Project Management. Thorogood. ISBN:1854182501.

Gunnigle Patrick, Moore Sarah, (1994), Linking Business Strategy and Human Resource Management Issues and Implications, Personnel Review, Vol. 23 No. 1,
1994, pp. 63-84. © MCB University.

Gupta, Anil K, (1987), Strategies, Corporate-SBU Relations, and SBU Effectiveness in Strategy Implementation, Academy of Management Journal 30 (1987): 477–500.

Gupta, Anil K., and Govindarajan, Vijay, (1984), Business Unit Strategy, Managerial Characteristics, and Business Unit Effectiveness at Strategy Implementation, Academy of Management Journal 27 (1984): 25–41.

Guth, William D., MacMillan, Ian C., (1986), Strategy Implementation versus Middle Management Self-Interest, Strategic Management Journal 7 - 313–337.

Hajime Eto, (1991), Classification of R&D organisational structures in relation to strategies, IEEE Transactions on Engineering Management, VOL. 38, NO. 2, MAY 1991.

Hällgren Markus, Maninen-Olsson Eva, (2005), Deviations, Ambiguity and Uncertainty in a Project-Intensive Organisation, PMI Journal Vol 36, No 3.

Hambrick, Donald C., and Guth, William D., and MacMillan, Ian C., (1986), Strategy Implementation versus Middle Management Self-Interest, Strategic Management Journal 7 - 313–337.

Hamel G., Prahalad K., (1989), Strategy - Strategic Intent, Harvard Business Review, May-June 1989.

Hamel, G., (1996), Strategy as revolution, Harvard Business Review
Hammonds Keith, (2001), Big Ideas, Fast Company Media Group, LLC http://www.fastcompany.com/learning.

Hansen Fred, Smith Michele, (2006), The ethics of business strategy, Handbook of Business Strategy, pp 201-206.

Harpham Alan, (2002), Expert Project Management - Bridging the Gap between Corporate Strategy and Project Management, http://www.maxwideman.com, The 16th International Project Management Association's World Congress in Berlin, 2002.

Hauc Anton, Kovac Jure, (2000), Project management in strategy implementation experiences in Slovenia, International Journal of Project Management 18 (2000) 61-67.

Heerkens Gary, (2002), Project Management, McGraw-Hill, ISBN 0-07-139449-4.

Heide Morten, Granhaug Kjell, Johannessen Simen, (2002), Exploring barriers to the successful implementation of a formulated strategy, Scand. J. Mgmt. 18 (2002) 217–231.

Helm Jane, Remington Kaye, (2005), Effective Project Sponsorship An evaluation of the role of the executive sponsor in complex infrastructure projects by senior project managers, PMI Journal Vol 36, No 3.

Hill, W. L. Charles, Gareth R. Jones. (2001). Strategic Management Theory. Fifth edition. Houghton Mifflin Company, Boston – New York. ISBN: 0-618-07146-6.

Hillson David, (2004), Dekker - Effective Opportunity Management for Projects, Marcel Dekker, Inc., ISBN: 0-8247-4808-5.

Hölttä-Otto Katja, Magee Christopher, (2006), Estimating factors affecting project task size in product development-an empirical study, IEEE Transactions on Engineering Management, VOL. 53, NO. 1, FEBRUARY 2006.

Hrebiniak L., and Snow, C. C., (1982), Top Management Agreement and Organisational Performance, Human Relations 35 (December 1982): 1139–1158.

Hrebiniak Lawrence, (2006), Obstacles to Effective Strategy Implementation, Organisational Dynamics, Vol. 35, No. 1, pp. 12–31, 2006.

Hurt, Chris. (2005). Doing a Literature Review. Sage Publications. ISBN: 0-7619-5975-0.

Hussey, David. (1998). Strategic Management: From Theory to Implementation, Fourth Edition. Butterworth-Heinemann . ISBN:0750638494.

Ian Maclachlan, (2004), Jacques Derrida: Critical Thought, Ashgate Publishing Company ISBN : 07546-0806-9.

Ives Mark, (2005), Identifying the contextual elements of project management within organisations and their impact on project success, PMI Journal Vol 36, No 1.

Jaafari Ali, (2003), Project management in the age of complexity and change, PMI Journal Vol 34, No 4.

Jelinek Mariann, (1979), Institutionalizing Innovation: A Study of Organisational Learning Systems, Greenwood Pub Group, ISBN: 0030470315.

Johnson G, Scholes, K and Whittington R (2005) Exploring Corporate Strategy Prentice Hall

Joia Luis Antonio, (2000), Measuring intangible corporate assets Linking business strategy with intellectual capital, Journal of Intelectual Capital, Vol. 1 No. 1, pp. 68-84.

Jugdev Kam, (2006), Project management elements as strategic assets preliminary findings, Management Research News Vol. 29 No. 10, 2006 pp. 604-617.

Jung Y. Joo, Lim Sang-Gyu, (2007), Project Categorization, Prioritization, and Execution Based on Six Sigma Concept: A Case Study of Operational Improvement Project, PMI Journal Vol 38, No 1.

Kaplan Robert, Norton David, (2001), The Strategy-Focused Organisation, Harvasrd Business School Press, ISBN: 1-57851-250-6.

Kendrick Tom , (2004), The Project Management Tool Kit-100 Tips and Techniques for Getting the Job Done Right, AMACOM, ISBN:0814408109.

Kerzner Harold, (2001), Strategic Planning for Project Management, John Wiley & Sons, ISBN 0-471-40039-4.

Kerzner Harold, (2003), Project Management A Systems Approach To Planning Scheduling And Controlling (8 Ed), John Wiley & Sons, ISBN:0471225770.

Chan Kim, Mauborgne Renée, (2005), Blue Ocean Strategy -Build Execution into Strategy, Harvard Business School Press,ISBN 1-59139-619-0

Klein Stuart, (1996), A Management Communication Strategy for Change, Journal of Organisational Change Management, Vol. 9 No. 2, 1996, pp. 32-46. © MCB University Press, 0953-4814.

Kloppenborg J. Timothy, Tesch Deborah, ManolisChris, Heitkamp Mark, (2006), An Empirical Investigation of the Sponsor's Role in Project Initiation, PMI Journal Vol 37, No 3

Knudson Joan, Bitz Ira, (1991), Project Management, AMACOM Books
ISBN: 0814450431.

Knutson Joan. 2001. Project Management for Business Professionals. John Wiley & Sons, Inc., ISBN: 0 471 38033 4.

Kotnour Tim, (2000), Organisational learning practices in the project management environment, International Journal of Quality & Reliability Management, Vol. 17 Nos 4/5, 2000, pp. 393-406.

Laffan Brigid, (1983), Policy Implementation in the European Community: The European Social Fund as a Case Study, Journal of Common Market Studies 21 (1983): 389–408.

Lampel Joseph, (2001), The core competencies of effective project execution the challenge of diversity, International Journal of Project Management 19 (2001) 471–483.

Larson erik, Gobel David, (1989), Significance of project management structure on development success, IEEE Transactions on Engineering Management, VOL. 36, NO. 2, MAY 1989.

Liao Ziqi, Greenfield Paul, (2000), The synergy of corporate rd and competitive strategies An exploratory study in australian high-technology companies, The Journal of High Technology Management Research, Volume 11, Number 1, pages 93–107.

Littler Kevin, Aisthorpe Phil, Hudson Robert, Keasey Kevin, (2000), A new approach to linking strategy formulation and strategy implementation: an example from the UK banking sector, International Journal of Information Management.

Longman Andrew, Mullins James, (2004), Project Management a key tool for implementing strategy, Journal of Business Strategy, Vol. 25, No. 5, 2004, pp. 54-60, ISSN 0275-6668.

Lorange Peter, (1998), Strategy implementation the new realities, Long Range Planning, Vol. 31, No. 1, pp. 18 to 29,1998

Lovell, R. J., (1993), Power and the project manager, International Journal of Project Management.

Luecke Ritsard, (2003), Strategy - Managing Change and Transition, Harvard Business School Publishing Corporation, ISBN 1-57851-874-1.

Luftman J. et al (1996) Competing in the Information Age: Strategic Alignment in Practice, Oxford University Press.

Luoma Mikko, (2000), Investigating the link between strategy and HRD, Personnel Review,

Vol. 29 No. 6, 2000, pp. 769-790.

Lycett Mark, Rassau Andreas, Danson John, (2004), Programme management a critical review, International Journal of Project Management 22 (2004) 289–299

Lyneis James, (2003), Dynamics of Project Performance, MIT SD Class Five (10/7/03).

Lyneis James, (2003), Strategic Issues in Project Preparation and Planning, MIT SD Class Five (10/7/03).

Lynham Susan A., (2002), Advances in Developing Human Resources: Quantitative Research and Theory Building Dubins Method, Vol. 4, No. 3 August 2002 242-276,
2002 Sage Publications.

Manning Tony, (2001), Making Sense of Strategy, AMACOM, Zebra 2001, ISBN 0-8144-7156-0.

Martinelli Russ, Jim Waddell, (2005), Program Management Linking Business Strategy to Product and IT, Intel Corporation.

Martinsuo Miia, Hensman Nicole, Artto Karlos, Kujala Jaakko, Jaafari Ali, (2006), Project-Based Management as an Organisational Innovation: Drivers, Changes, and Benefits of Adopting Project-Based Management, PMI Journal Vol 37, No 3.

Martinsuo Miia, Lehtonen Paivi, (2006), Role of single-project management in achieving portfolio management efficiency, International Journal of Project Management 25 (2007) 56–65.

Massingham Peter, (2004), Linking business level strategy with activities and knowledge, Journal of Knowledge Management, Vol. 8 No. 6 pp. 50-62.

Maylor Harvey, (2001), Beyond the Gantt chart Project management moving on, European Management Journal Vol. 19, No. 1, pp. 92–100, 2001.

Maytorena Eunice, Winch Graham, Freeman Jim, Kiely Tom, (2007), The Influence of Experience and Information Search Styles on Project Risk Identification Performance, IEEE Transactions on Engineering Management, VOL. 54, NO. 2, MAY 2007.

McAdam Rodney, Bailie Brian, (2002), Business performance measures and alignment impact on strategy The role of business improvement models, International Journal for operations and Production Management, Vol. 22 No. 9 (2002) pp. 972-996.

McCray Gordon E., Purvis Russell L., McCray Coleen G., (2002), Project Management Under Uncertainty: The Impact of Heuristics and Biases, PMI Journal Vol 33, No 1.

Meta Group, (2002), The business of IT portfolio management: Balancing risk, innovation and ROI, Meta Group white paper.

Metaxiotis Kostas, Zafeiropoulos Ioannis, Nikolinakou Konstantina, Psarras John, (2005), Goal directed project management methodology for the support of ERP implementation and optimal adaptation procedure, Information Management & Computer Security Vol. 13 No. 1, 2005 pp. 55-71.

Miia Martinsuo, Lehtonen Paivi, (2007), Role of single-project management in achieving portfolio, International Journal of Project Management 25 (2007) 56–65.

Mikkola Juliana Hsuan, (2001), Portfolio management of R&D projects implications for innovation management, Technovation 21 (2001) 423–435.

Miles Raymond, Snow Charles, (2003), Organisational Strategy, Structure, And Process, Stanford Business Clasics, Stanford Business Books, University Press, ISBN: 0-8047-4840-3.

Miller Bruce, (2002), Linking Corporate Strategy to Project Priority and Selection, PMI Symposium, Chicago, Illinios, September 30, 1997 Last reviewed for content relevancy January 2002.

Miller Susan, Wilson David, Hickson David, (2004), Beyond Planning Strategies for Successfully Implementing Strategic Decisions, Long Range Planning 37 (2004) 201–218.

Millera Roger, Lessardb Donald, (2001), Understanding and managing risks in large engineering projects, International Journal of Project Management 19 (2001) 437–443.

Milosevic Dragan Z., Martinelli Russ, Waddell James M. , (2007), Program Management for Improved Business Results, John Wiley & Sons, ISBN : 978-0-471-78354-1.

Milosevic Dragan, Srivannaboon Sabin, (2006), A Theoretical Framework for Aligning Project Management with Business Strategy, PMI Journal Vol 37, No 3.

Mintzberg H., (1994), Strategy - The Fall and Rise of Strategic Planning, Harvard Business Review Jan-Feb.1994.

Mintzberg, Henry. Ahlstrand, Bruce W. Lampel, Joseph. (1998). Strategy safari: A guided tour through the wilds of strategic management. Free Press (New York). ISBN 0684847434.

Morris Peter W. G., Pinto Jeffrey K.,Strategic business management through multiple projects The Wiley Guide to Managing Projects, John Wiley & Sons.

Morris Peter, Jamieson Ashley, (2004), Linking Corporate Strategy to Project Strategy via Portfolio, Project Management Institute.

Morris, Peter and Ashley Jamieson. (2004). Translating Corporate Strategy into Project strategy : Realizing Corporate Strategy Through Project Management, PMI. Project Management Institute.

Newell Sue, Tansley Carole, Huang Jimmy, (2004), Social Capital and Knowledge Integration in an ERP Project Team : The Importnace of Bridging AND Bonding, British Journal of Management, Vol. 15, S43-S57 (2004).

Nielsen, Richard P, (1983), Strategic Planning and Consensus Building for External Relations—Five Cases., Long Range Planning 16 - 74–81.

Nilsson Fredrik, Rapp Birger, (1999), Implementing business unit strategies the role of management control systems, Scand. J. Mgmt. 15 (1999) 65-68.

Noble Charles , (1999), Building the Strategy Implementation Network, Business Horizons.

Noble Charles , (1999), The Eclectic Roots of Strategy Implementation Research, 45.119–134. Elsevier Science Inc.

Noy Eli, (1998), Total business strategy - the missing link, Long Range Planning, Vol. 31, No. 6 pp. 927 to 932, 1998.

Nutt, Paul C, (1983), Implementation Approaches for Project Planning., Academy of Management Review 8 - 600–611.

Nutt, Paul C., (1986), Tactics of Implementation, Academy of Management Journal 29 - 230–261.

Nutt, Paul C., (1990), Strategic Decisions Made by Top Executives and Middle Managers with Data and Process Dominant Styles, Journal of Management Studies 27 - 173–194.

Office of Government Commerce (OGC), (2007), Program and Project management, http://www.ogc.gov.uk/programmes___projects_introduction_to_programmes.asp.

Olavson Thomas, (1999), EES&OR483 Ver 3.0 Project - Generic Strategy- Types of Competitive Advantage, Stanford University Dept. of Engineering-Economic Systems & Operations Research.

Olsona M. Eric, Slaterb F. Stanley Hultc Tomas G. M., (2004), The importance of structure and process to strategy implementation, Business Horizons (2005) 48, 47—54, College of Business and Administration, University of Colorado-Colorado Springs, CO 80933-7150, United States.

Olsson O.E. Nils , (2006), Management of flexibility in projects, International Journal of Project Management 24 (2006) 66–74.

Oltra M.J., Maroto C., Segura B. , (2005), Operations strategy configurations in project process firms, International Journal of Operations & Production Management Vol. 25 No. 5, 2005 pp. 429-448.

Orwig Robert, Brennan Linda, (2000), An integrated view of project and quality management for project-based organisations, International Journal of Quality & Reliability Management,
Vol. 17 No. 4/5, 2000, pp. 351-363.

Palmer Mike, (2002), How an effective project culture casn help to achieve business success : Establishing a project culture in Kimberly-Clark, Industrial and commercial trainning, Vol 34, No3, pp 101 – 105.

Partington David, Pellegrinelli Sergio, Young Malcolm, (2005), Attributes and levels of programme management competence an interpretive study, International Journal of Project Management 23 (2005) 87–95.

Pietersen William., (2002), Reinvetming Strategy: Using Strategic Learning to Create and Sustain Breakthrough Performance, John Wiley & Sons, Inc., ISBN 0-471-06190-5.

Pinto, Jeffrey K., and Prescott, John E., (1990), Planning and Tactical Factors in the Project Implementation Process, Journal of Management Studies 27 - 305–327.

Porter E. Michael, (1998), Competitive Strategy - Michael Porter, The Free Press
Porter Michael, (1985), Competitive Advantage, The Free Press, NY.

Porter Michael, (1987), From competitive advantage to corporate strategy, Harvard Business Review, May-June 1987.

Porter Michael, (1996), What Is Strategy, Harvard Business Review, (November-December 1996), 96608.

Porter, E. Michael. (1980). Competitive Strategy. Macmillan Publishing Co., Inc.

Powell Robert, Buede Dennis, (2006), Decision-Making for Successful Product Development, PMI Journal Vol 37, No 1 President and Fellows of Harvard College., (2000), Corporate Strategy-A Manager's Guide, Harvard Business Review.

Priem, Richard L., (1990), Top Management Team Group Factors, Consensus, and Firm Performance, Strategic Management Journal 11- 469–478.

Project Management Institute, PMI. (2003). A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2003 Edition. Project Management Institute.

Project Management Institute, PMI. (2003). OPM3. Organisational Project management Maturity Model, Project Management Institute.

Project Management Institute, PMI. (2006). The Standard for Portfolio Management. Global Standard 2006 First edition. ISBN: 1-930699-90-5.

Project Management Institute, PMI. (2006). The standard for Programme Management. Global Standard 2006 First edition. ISBN: 1-930699-54-9.

Project Management Professionals Certification Center, (2002), Making Sense of Strategy, Project Management Professionals Certification Center (PMCC), Revision 1. August 2002.

Raby Michael, (2000), Project management via earned value, Work Study Volume 49 . Number 1 . 2000 . pp. 6±9 # MCB University Press . ISSN 0043-8022.

Randall Englund, (2000), Linking Strategy and Portfolio at Front-end, PDMA/IIR conference on Portfolio Management for New Product Development in Ft. Lauderdale, January 2000.

Rapert Molly Inhofe, Velliquette Anne, Garretson Judith A., (2002), The strategic implementation process: Evoking strategic consensus through communication, Journal of Business Research 55 (2002) 301– 310.

Robert Kaplan and David Norton, (1996), The Balanced Scorecard: Translating Strategy into action, Harvard Business Review, January-February 1996.

Robertson Stephen, Williams Terry, (2006), Understanding Project Failure: Using Cognitive Mapping in an Insurance Project, PMI Journal Vol 37, No 4.

Robson C, (1993), Real World Research, Blackwell, Oxford.

Robson, W. (1997) Strategic Management & Information Systems, Pitman Publishing, 2nd Edition.

Salmelaa Hannu, Spil A.M. Ton , (2002), Dynamic and emergent information systems strategy formulation and implementation, International Journal of Information Management 22 (2002) 441–460.

Sandy William:, (1991), Avoid the Breakdowns between Planning and Implementation, Journal of Business Strategy 12 (September/October 1991): 30–33.

Sauer C., Reich B.H., (2007), What do we want from a theory of project management, International Journal of Project Management 25 (2007) 1–2.

Schaffer, Robert H. (1988). The Breakthrough Strategy. Harper Business.

Scholey Cam, (2005), Strategy maps a step-by-step guide to strategy, JOURNAL OF BUSINESS STRATEGY VOL 26 NO. 3 2005, pp, 12-19, « Emerald Group Publishing Limited, ISSN 0275-6668.

Schwenk, Charles R., and Cosier, Richard A., (1993), Effects of Consensus and Devil's Advocacy on Strategic Decision-Making, Journal of Applied Social Psychology 23 - 126–139.

Shenhar Aaron, (2005), Project Management Excellence Seminar, The Technological Leadership Institute.

Siciliano Julie, (2002), Governance and strategy implementation expanding the board's involvement, Business Horizons / November-December 2002.

Simkin Lyndon, (1996), People and Processes in Marketing Planning: The Benefits of Controlling Implementation, Journal of Marketing Management 12 - 375–390.

Skivington, James E., and Daft, Richard L., (1991), A Study of Organisational "Framework" and "Process" Modalities for the Implementation of Business-Level Strategic Decisions, Journal of Management Studies 28 - 45–68.

Southam Simon Box, Platts Ken, (2005), Business process management establishing and maintaining project alignment, Business Process Management
Journal Vol. 11 No. 4, 2005 pp. 370-387.

Sproull, Lee S., and Hofmeister, Kay Ramsay, (1986), Thinking about Implementation, Journal of Management 12 (1) - 43–60.

Srivannaboon Sabin, Milosevic Dragan, (2005), A two-way influence between business strategy and project management, International Journal of Project Management.

Srivannaboon, Sabin. (2006). Linking Project Management with Business Strategy. Journal of PMI. Vol. 37. No. 5. 88-96, ISSN 8756-9728/03.

St. John, Caron H., and Rue, Leslie W., (1991), Research Notes and Communications: Coordinating Mechanisms, Consensus between Marketing and Manufacturing Groups and Marketplace Performance, Strategic Management Journal 12 - 549–555.

Stagner R., (1969), Corporate Decision Making: An Empirical Study, Journal of Applied Psychology 53 (February 1969): 1–13.

Stock Gregory, Mc-Dermott Christopher , (2001), Organisational and strategic predictors of manufacturing technology implementation success an exploratory study, G.N. Stock, C.M. McDermott / Technovation 21 (2001) 625–636.

Strahle, William M., Spiro, Rosann L., Acito, Frank, (1996), Marketing and Sales: Strategic Alignment and Functional Implementation, Journal of Personal Selling & Sales Management 16 - 1–18.

T833, (1999), Implementation of New Technologies, Open University.

T836, (1999), International Operations Managaement, Open University.

The Newsletter from Harvard Business School Publishing, (2000), Corporate Strategy - A Manager's Guide [Harvard Business Review], Harvard Management Update, ARTICLE REPRINT N0.UOOO1A.

Thiry Michael, (2004), Value Management: A Group Decision-Making Process to achieve stakeholders needs and expectations in the most resources-effective ways, in: The Wiley Guide to Managing Projects, Morris, P.W.G. and Pinto, J. K., Wiley Inc: New York.

Thomas Janice, Delisle Connie, Jugdev Kam, Buckle Pamela, (2002), Selling Project Maneamgent to Senieor Executives, PMI Journal Vol 33, No 2.

Thomson A. Arthur Jr, Strickland III A. J, (1998), Crafting and Implementing strategy, Irwin/McGraw-Hill, ISBN: 0-256-24145-7.

Tikkanen Henrikki, Kujala Jaakko, Artto Karlos, (2007), The marketing strategy of a project-based firm: The Four Portfolios Framework, Industrial Marketing Management 36 (2007) 194–205

Tinnirello Paul, (2001), New Directions In Project Management - Auerbach, Auerbach Publications; ISBN: 084931190X; (September 26, 2001).

Van der Merwe A.P., (2002), Project management and business development integrating strategy structure processes and projects, International Journal of Project Management 20 (2002) 401-411.

Vassilopoulos, A. George. (2003). MSc Thesis on Manufacturing: Management and Technology: Strategic model for the implementation of IT projects in a financial organisation. OU UK.

Verzuh Eric, (2005), The Fast Forward MBA in Project Management, John Wiley & Sons, Inc.

Wainwright Charles, (1995), Design a missing link in manufacturing strategy, World Class Design to Manufacture Volume 2 · Number 3 · 1995 · pp. 25–32.

Waldersee, Robert, and Sheather, Simon, (1996), The Effects of Strategy Type on Strategy Implementation Actions, Human Relations 49 - 105–122.

Ward J, et al (1996, 2002) Strategic Planning for Information Systems, Editions 2 & 3, Wiley.
Warnock Davies, (2000), Understanding strategy, Strategy & Leadership 2 8/5/ 2000, pp. 25-30, M C B University Press, 1087 – 8572.

Watkins Michael, (2003), Strategy -The First 90 Days Critical Success Strategies For New Leaders At All Levels, Harvard Business School Publishing Wearne Stephen, (2006), Management Unexpected Urgent Projects, PMI Journal Vol 37, No 5.

Webster's New World Dictionary and Thesaurus, 2nd Edition (2002), John Wiley & Sons.

Wernham, Roy, (1985), Obstacles to Strategy Implementation in a Nationalized Industry, Journal of Management Studies 22 - 632–648.

Whitney, J. C., and Smith, R. A., (1983), Effects of Group Cohesiveness on Attitude Polarization and the Acquisition of Knowledge in a Strategic Planning Context, Journal of Marketing Research 20 (May 1983): 167–176.

Whittington Richard, Molloy Eamonn, Mayer Michael, Smith Anne, (2006), Practices of Strategising Organising Broadening Strategy Work and Skills, Long Range Planning 39 (2006) pp. 615 - 629 http://www.lrpjournal.com.

Wideman Max R., (1992), Project and Program Risk Management -- A guide to Managing Project Risk and Opportunities, PMI, ISBN 1-880410-06-0

Willcocks, L., Feeny, D., and Islei, G. (1997) Managing IT as a Strategic Resource, London: McGraw-Hill.

Wilson Ian, (2003), The Subtle Art of Strategy: Organisational Planning in Uncertain Times, Greenwood Press, ISBN:156720435X.

Winter Robert, (2003), Business-Models, Institute of Information Management
University of St. Gallen, Switzerland.

Woolridge Bill, and Floyd Steven W, (1989), Research Notes and Communications: Strategic Process Effects on Consensus, Strategic Management Journal 10 - 295–302.

Woolridge, Bill, and Floyd, Steven W, (1989), Research Notes and Communications: Strategic Process Effects on Consensus, Strategic Management Journal 10 - 295–302.

Youker Robert, (1999), The difference between different types of projects., The Project Management Institute 1999 Conference in Philadelphia, Pa.

DOCTOR OF BUSINESS ADMINISTRATION

The Links between
Organisational Strategy and Project Management

Document three

An Interpretative Report on a Piece of Ethnographic Research

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"Document 3 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

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Table of Contents

1. Introduction

Qualitative research methods were developed in social sciences to enable researchers to study social and cultural phenomena. That is to say, it aims to help us to understand the world in which we live and why things are the way, they are. This type of research is concerned with developing explanations of social phenomena existent in the project management context. It is concerned with the social aspects of the business world and seeks answers about influence factors and links and tries to find them to questions which begin with why, how, and what way? Finally, understanding of a situation gained through a holistic perspective (Hancock 2002).

The motivation for doing qualitative research comes from the observation that, if there is one thing, which distinguishes humans from the natural world, it is our ability to talk. Qualitative research methods were designed to help researchers to understand people and the social and cultural contexts within which they live. Kaplan and Maxwell (1994) argue that the goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data quantified. Taylor (1976) stated that interpretation is an attempt to make clear, to make sense of an object of study. This object must, therefore, be a text, or a text-analogue, which in some way is confused, incomplete, cloudy, seemingly contradictory, in one way or another, unclear. The interpretation aims to bring to light an underlying coherence or sense.

Qualitative research is a loosely defined category of research designs or models, all of which elicit verbal, visual, tactile, olfactory, and gustatory data in the form of descriptive narratives like field notes, recordings, or other transcriptions from audio and other written records (LeCompte et al 1993). It called interpretive research, naturalistic research, phenomenological research, and descriptive research. It seeks to understand, as completely as possible, the phenomena under study. It has qualitative goals of complete understanding, but interacts with research subjects, in their own setting, to come to that understanding. Qualitative data sources include observation and participant observation (fieldwork), interviews and questionnaires, documents and texts, and the researcher's impressions and reactions.

There is a variety of methods to use in order to collect data through data analysis. Expert interviewing entails more than just asking questions, and content analysis requires a lot more than just reading a text to see what it says. Generating useful and trustworthy research from a qualitative project requires careful planning, discipline, practice, and time (Winget 2005).

Qualitative research attempts to increase our understanding of why things are the way they are in the business world and why people act the way, they do. In front of the requirements of this study, the qualitative approach will be concerned with investigation and development of explanations of phenomena in the business environment, with the aim to help to understand why those links are the way they are and how they reflect the implementation of business strategy by using project management. Why the influencing factors behave the way they do. How opinions and attitudes formed in human resources as a social aspect (project managers, business managers and external consultants). How they affected by the events that go on around them, how and why business cultures have developed in the way they have and finally reveal their relationship or differences between them. This will give the opportunity to understand the research situation through a holistic perspective and gain deeper insight into the phenomena under study.

Epistemology refers how to obtain the assumptions about knowledge. According to Chua (1986), there are three categories, based on the underlying research epistemology: positivist, interpretive and critical.

This three-fold classification is the one that adopted in this research. However, while these three research epistemologies are philosophically distinct in the practice of social research these distinctions are not always so clear.

Qualitative research can be positivist, interpretive, or critical (see figure 1.1), (Lee et al 1992). It follows from this that the choice of a specific qualitative research method is independent of the underlying philosophical position adopted.

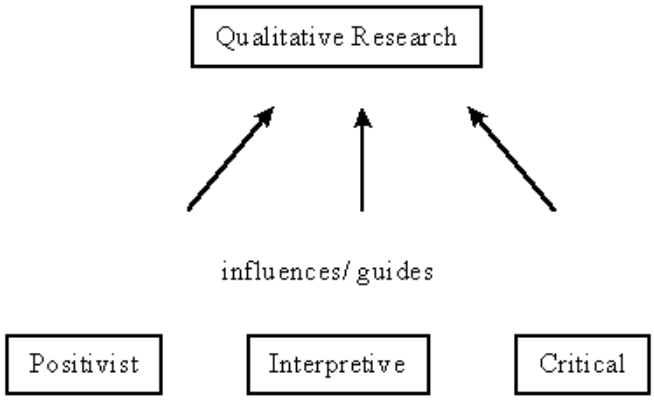


Figure 1.1 Qualitative research philosophical assumptions (Lee et al 1992)

At this point, it is important and should be clear from the above that the word “qualitative” is not a synonym for “interpretive” qualitative research may or may not be interpretive, depending upon the underlying philosophical assumptions of the researcher.

Positivists generally assume that reality is objectively given and can be described by measurable properties, which are independent of the observer (researcher) and used instruments. Positivist studies generally attempt to test theory, in an attempt to increase the predictive understanding of phenomena.

Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges (Kaplan et al 1994).

On the other hand, interpretive researchers start out with the assumption that access to reality is only through social constructions such as language, consciousness, and shared meanings.

The philosophical base of interpretive research is hermeneutics and phenomenology (Boland 1985, 1991). Interpretive studies generally attempt to understand phenomena through the meanings that people assign to them and interpretive methods of research (Walsham 1993).

Finally, critical researchers assume that social reality is historically constituted, and it produced and reproduced by people.

Discovering the mechanisms

This study aimed to produce an understanding of the “project management context” elements, their links, and their influence factors whereby, affect it. Such influence, could be positive or negative with fragmentation or/and disconnection on between elements effectiveness, integration, and cooperation.

This document produces an outcome from the qualitative research approach applied to a modern organisational environment. The relevant research subject's complexities are explored according to positivist - realist approach, while the crucial value of the research questions addressed in the following paragraphs. This approach involves the study and structural observation of business strategy implementation in practice. Therefore, the result is a comprehensive report on an interpretative, non-survey based research.

An open – ended interview questionnaire, based on conceptual framework, was used to collect all those experiences and participants’ tacit knowledge on project management

practice. To discover the influencing factors emanated from organisational context and find how they are affecting the process of business strategy implementation. Finally, to discover how they are influencing each other as well.

By using interpretative approach, qualitative data is analysed in order to develop concepts and theories helping to understand better the «project management context» in business environment.

The structure of this document contains: a) a discussion of the research questions in relation to the qualitative research methods and the way that they are used, b) an analysis of collected information with conclusions and issues with opportunities for further research and c) an identification of possible implications of the research findings to the predefined conceptual and model frameworks.

1.1 The importance of research questions

A. Strategic Questions

What is the relationship framework, between business strategy and project management?
What are the influencing factors that affect this framework?

B. Research Questions

The following research questions are asked for a more detailed approach:

1. What are the elements of «project management context» in practice and how are they linked?
2. What are the factors affecting the «project management context» and how are they influencing each other and at what level?
3. What are in practice the unobserved situations of «project management context»?
4. Which are the most important influencing factors?
5. How would a project strategy be developed in a particular organisation?

(The term «project management context» is explained in chapter 2, so, it is in double brackets to show emphasis and the specific meaning given).

What asked from the strategic and research questions is for the identification and validation of the main theoretical findings through the qualitative analysis of interview data.

The strategic question A.1 and the research question B.1 have a reflection to the identification, justification, and assessment of the conceptual framework developed through the critical analysis of the findings from the literature review. The strategic question A.2 and the research questions B.2, B.3 B.4 and B.5 have a reflection to assessment of the factors affecting those links positively or negatively. Research questions B.2 and B.3 are answered by the results of the qualitative analysis in reflection to the findings of the other related questions as well. Similarly, the strategic questions A.2 and the research questions B.4, B.5 are soundly answered only after the analysis and conclusion of the findings from the qualitative and quantitative results.

1.2 The relationship between research and interview questions.

The strategic and research questions drive "govern" and help to produce the interview questions. The relationship between the theoretical strategic and research questions and the produced interview questions is based on how should intervene or avoid intervening wrongly, during the implementation of the interviews in order to get information relevant to the research subject. Intervention for changing direction of interviewee's narration is required, in order to avoid loss of time and discuss matters pertaining to irrelevant subjects. Research questions (strategic and research) are named as Theory Questions (TQ) and need to be distinguished from the Interview Questions (IQ), and the conceptual framework. The interpretation of qualitative material gathered from the implementation of interviews, are links of theoretical concepts to possible empirical indicators. The construction of Interview questions was according to the theoretical questions in reflection with the influencing factors. Based in the suggestion of Wengraf (2001) a pyramid model, illustrated in figure 1.2, was used for the construction of the structured interview questions. The qualitative structured questionnaire based on this approach is illustrated in appendix 1 as interview questions' areas and in appendix 4.

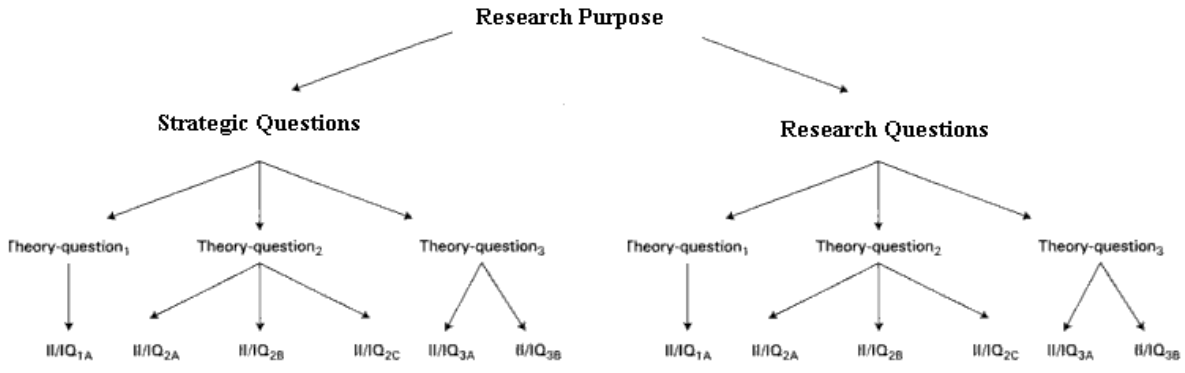


Figure 1.2 Pyramid model for the construction of interview questions (Wengraf 2001)

In the following paragraphs, the structure of the next chapters is described and explained accordingly.

Conceptual framework chapter

The conceptual framework and the "Strategy Implementation Model" (SIMS) emanated from theory, are presented, containing some additional elements in the model, like PMO (project management office) and control process. Finally, the hypostasis of «project management context» and influence factors, are explained accordingly.

Methodology Chapter

In this chapter, the interview method, the modes of interpretive analysis, the coding, the categorization of qualitative data and the methods for qualitative data analysis is developed in respective sections.

The interviewing method

In this section, the following methods are developed and explained: the confessional ethnography and how the interviews were formulated. In the same line, participant's categories and interviewees' profiles are presented as well. How the open-ended questions were constructed and what interviewing process was used. Subsequently, the qualitative research issues, the target research population, and the timing issues. In addition, the way of the required validation of qualitative research was performed, by using observation as a part of qualitative research for research reliability & validity. Finally, the research ethical issues are presented.

Modes of interpretive analysis - coding and categorizing qualitative data

In this section, Denzin's (2001) six phases are suggested for the systematic analysis of texts. In addition, the empirical and methodological analysis of texts presented as well. As qualitative content analysis based on systematic text analysis, for the development of procedures for text processing is suggested. Therefore, qualitative content analysis procedures are developed.

The qualitative content analysis procedures contain the following processes: model of communication, category development, category application, and finally check the reliability and validity of information collected. For the development of categories is suggested the Mayring's (2000) step model of categories application.

This is presented in reflection with analytic deduction method. On the other hand, the comparison with literature theoretical findings is suggested. This is suggested being inter-subjectively comprehensible, in comparison with the results of literature review findings. Then, use a feedback loop to revise those categories, eventually reduce, and check them in respect to their reliability.

Categorising and coding the qualitative data by using different techniques

Categories and codes eventually were the key variables used to analyze similarities and variations within the data. It is presented the coding by using "microanalysis" method by analysing data word-by-word" and "coding the meaning found in words or groups of words" so reflecting directly to the concepts which have potential explanatory value for the phenomena described" (Strauss et al1990).

Here, it is suggested to use axial coding, to identify, and describe the relationships between the concepts as these adapted with Denzin's (2001) six phases of analysis and Derrida's (1981) deconstruction for analyzing critically, prior conceptions of the phenomenon. In addition, apply crosschecks with the current conceptual framework by using contemporaneously and constant comparison methods (Strauss 1987, 1998). This was applicable by looking at findings for indicators of categories in events and behaviour by naming and coding them. Finally, the method of coding by using continually comparing concepts method, all other concepts and further commonalities found are formed, and then the broader categories are presented.

Finally, the variation method of Delphi technique and quasi statistics analysis, for the validation of qualitative analysis findings is described and developed.

Methods used for qualitative data analysis

In this section, each of the qualitative text analysis methods used for the production of transcripts of the individual's recorded interviews is described and explained. The suggested methods were the following in table 1.1.

Conversation Analysis

Metaphorical Analysis
Typological analysis
Explanatory typology
Taxonomy
Quotations

Table 1.1 Qualitative text analysis methods

Analysis chapter

In analysis chapter, the direction of qualitative analysis is explained. Here, the analysis of interviews and observations are referred and how categories and respective codes were formulated. The analysis of Project management context and Influence factors' categories are presented as well. The structure for the presentation of results is performed according to hierarchy of categories. In each category a range of items are described. Those findings are presented in respective sections followed by a discussion. Finally, a deeper analysis and consideration of unobserved business situations are developed in a matrix. In this matrix, all participants' stances and variations on each of the influence factors faced in practice are referred.

Conclusions chapter

In this chapter, the use of variation method of Delphi technique and the results of influences reflection between factors is described. Subsequently, conclusions of the most important factors brought forward. Therefore, the between factors influence interrelationship based on the assessment scores are followed and commented by using practical examples. In addition, there was a revision of conceptual framework and Strategy Implementation Model (SIM).

Furthermore, here the two controversial directions on formulation of project management strategy are discussed. Those are the deterministic and probabilistic approaches followed by the key objectives for successful project management strategy, extracted from analysis of suggestions stated in participant's narratives.

Finally, the scope of the next step is referred as the quantitative research development, for further validation of qualitative analysis results.

2. Conceptual framework

2.1 Conceptual framework and identification of research focus

The conceptual framework in figure 2.1 identifies the links between the elements of the "project management context" and their influence factors. Theory showed how those factors are influencing and the results of different approaches or situations was explained. By using an inductive but also a deductive approach as well, the relation and correlation of phenomena found, events or actions which tend to lead to other phenomena or events were revealed fatherly in the analysis of participants' narratives.

Clarification of links and influence factors

The term "links" implies the connections between "project management context" elements through their processes as they presented in the conceptual framework. In other words, a link in this case, has the meaning of a connection and communication of information through input and output between the elements, from one process to another. Subsequently, by the term: "influence factors" it means those factors which are influencing the previous elements and their connections. Their similarities or differences and their level of influence, will analyzed accordingly in the following analysis and conclusions chapters.

According to Watson (1994), concepts may be related through a mechanism of exchange that leads to a balance or equilibrium between them (Fisher 2004). Consequently, the influencing factors perceived as influence variables of equilibrium of the strategic exchange between the business strategy and project management is illustrated in figure 2.1.

Definition of "project management context"

As "Project management context" is defined the framework of the elements of business strategy, operating plans, portfolio, program and project management, are connected and interact between them in a logical way. There is an informational process flow, starting from business strategy element to operating plans and then to portfolio of projects processes. Portfolio process may separates projects in different programs. Each of the projects then are promoted to implementation by the project management process. Influence factors are those which are affecting each of the elements in various ways. Those factors probably can be found in different combinations as they are dependent on organisational and project situations. The latter approach of factors highlights their complexity and relationship as they are affecting each other as well as the "project management context", continuously.

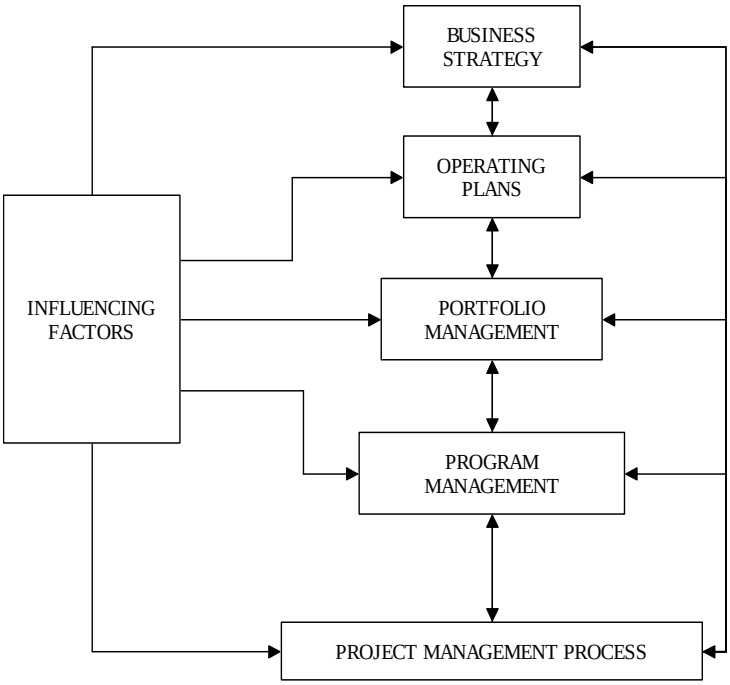


Figure 2.1 Conceptual framework of project management context

The development of the strategic exchange in conceptual framework is based on the idea of exchanging expectations and obligations between the organisation's parties, in order to achieve the common strategic objectives through an implicit contract and relationship.

Strategy Implementation Model (SIM)

The Strategy Implementation Model (SIM), illustrated in figure 2.3, is based on the conceptual framework according to literature review of document 2. By this perspective, the model perceived having continuous feedback within PMO. The schema is presenting the links and the relationships between the "project context" elements and the PMO, which contributes in project management strategy formulation and controls the projects' implementation.

Influence factors are affecting the "project management context" in various ways. On the other hand, there can be always unexpected situations and new factors emanated from internal or external environments, produce turbulences. Therefore the main advice is to anticipate them proactively. Their anticipation or at least regulation seems possible through proactive actions. Probably, many of them may have additional radical links with other hidden factors and being influenced by them as well.

Those influence factors as extracted by literature review are coded in Appendix 3 in order to help on qualitative analysis.

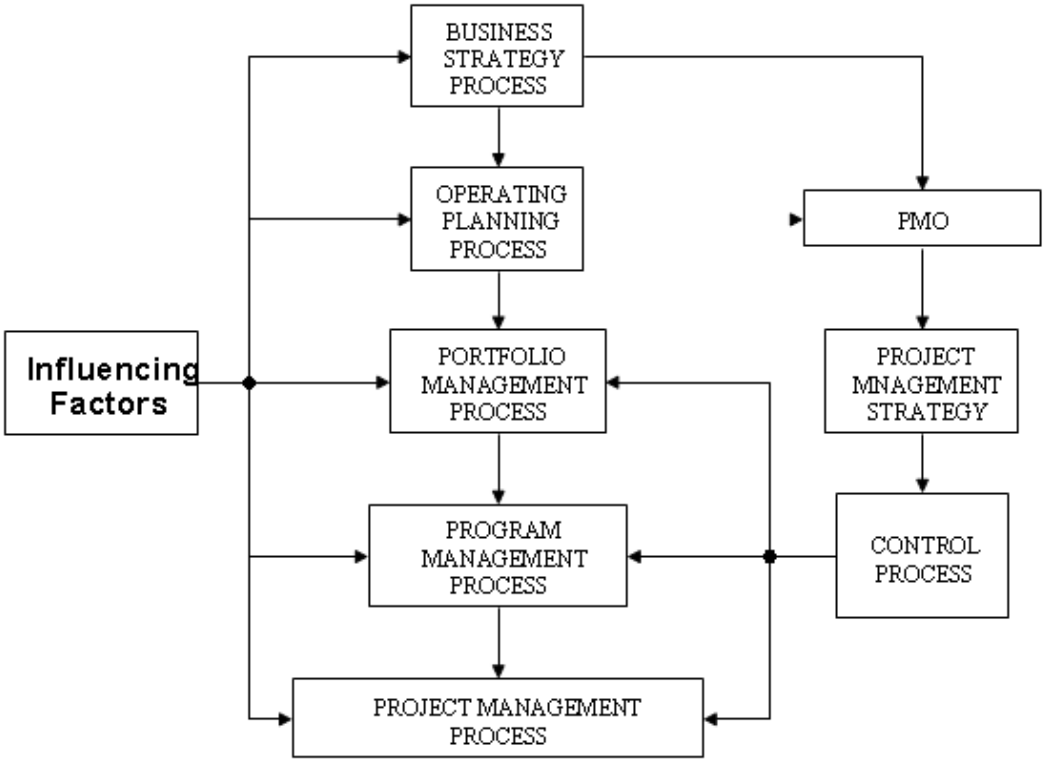


Figure 2.3 Strategy Implementation Model (SIM)

3. Methodology

3.1 Discussion of methodology for interpretative analysis (qualitative research - a theoretical approach)

Ethnographic research

Ethnographic research comes from the discipline of social and cultural anthropology where an ethnographer is required to spend a significant amount of time in the field. In document one, a mixture of structured coding research approach suggested, based on conceptual framework's findings of literature review, developed, and analyzed in document 2.

Ethnography is a "metagenre," at once a kind of text and a method of rhetorical analysis. There are two strands of ethnography in composition: a social science tradition that seeks precise methods analyzing contexts and an interpretive tradition influenced by post-modern theories that "puzzles" the relationship among reader, text, and world (Gilbert 2004).

As Hancock (2002) stated hypotheses about the relationship between various ideas or categories tested and constructs formed, leading to new concepts or understandings. In this sense, the theory is then "Grounded" in the data.

The nature of qualitative approach can be characterised as subjective, holistic, and phenomenological, anti positivist, descriptive, naturalistic, and inductive. It is open and supple, and one of its strengths is that it incorporates philosophies, theories, and research designs and methods as diverse as post-positivist multi-methods approaches and postmodernist social critiques (Freeman et al 2007). Qualitative study suggests the inductive method in reasoning from the specific to a whole and focusing on the particulars rather than the general. It is expected to gather rich descriptive data, ground conclusions and understandings in the data mined, not prior theories. The particulars tell the story. This involves using an emerging, flexible structure (Creswell 2005).

On the other hand, methods such as phenomenology or heuristic analysis, both based on how individuals experience the world. This emphasizes idiosyncratic meaning to individuals and not shared constructions as much. It means to try to bracket self out and enter into the other person's perspective and experience. In addition, it emphasizes the effects of research experience on the researcher-personal experience of the research. It is much like hermeneutical analysis, but even more focused on the researcher's experience. Some use the

term "phenomenology" to describe the researcher's experience and the idea that this is all research is or can ever be (Moustakas 1994).

Producing evidence on the basis of a priori theory

Falsification of general laws is the procedure critical rationalism as Popper (1966) suggested the only possible one. It is an indirect strategy because it tries to find false generalizations and hopes that true generalizations will remain. However, researchers also produce evidence based on a priori theory. These include macro-level theory such as positivism, social constructionism, Marxism, and feminism, as well as midlevel theories such as cognitive and linguistic theories. Making use of data and information as evidence means, “relying on background knowledge and auxiliary hypotheses, of ladening data with theory” (Willis et al 2002).

Theoretical Sampling

Barney Glaser and Anselm Strauss (1967) create the term “Theoretical Sampling”. In the context of social research used in order to describe the process of choosing new research sites or research cases to compare with one that has already studied. It is one of the tools of qualitative research. The goal of theoretical sampling is not the same as with the probabilistic sampling. In this case, the researcher's goal is not the representative capture of all possible variations. It is to gain a deeper understanding of analysed cases and facilitate the development of analytic frame and concepts used in their research. It is a form of argumentative generalization in the process of data collection.

The type of qualitative research used in this document

As Miles and Huberman (1994) referred, social phenomena exist not only in the mind but also in the objective world. There are regularities and sequences that link them together. Positivists assume that natural and social sciences measure independent facts about a single apprehensible reality composed of discrete elements whose nature can be known and categorised (Guba et al 1994; Tsoukas 1989).

Based on previous statements, social phenomena in an organisational environment and specifically in «project management context» exist objectively and exert strong influences over human activities because people construe them in common ways. Realists believe that there is a “real” world to discover even if it is only imperfectly and probabilistically apprehensible (Godfrey et al 1995; Guba et al 1994; Tsoukas 1989).

There are three domains of reality used. Those mechanisms, events, and experiences, in an organisational context are illustrated in Table 3.1 (Bhaskar 1978). The real domain is consisting by the processes that generate events, in which generative mechanisms or causal powers exist independently with a tendency to produce patterns of observable events under contingent conditions. In actual domain patterns of events occur whether they are observed or not. In empirical domain, experiences are obtained by direct observation, (Tsoukas 1989; Bhaskar 1978). The discovery of these observable or non-observable structures and mechanisms that contain events and experiences is the goal of realism research (Tsoukas 1989).

	Real domain	Actual domain	Empirical domain
Mechanisms	✓		
Events	✓	✓	
Experiences	✓	✓	✓

Table 3.1 Ontological assumptions of realism, Wollin (1995).

The qualitative research in this document, is performed in positive, realist approach in the manner of Miles and Huberman (1994). The stance tended to transcendental realism in interpretation of findings by searching for mechanisms, events, and experience to capture, in order to provide realistic approach of «project management context» elements, links, and influence factors. Searching and albeit towards an understanding of the common reality in it.

Qualitatively approach usually use more intensive and extensive methods of data collection and data analysis like in-depth interviews, open-ended questionnaires, long-lasting field research with many field notes, and interpretative document analysis. This often allows the construction of only few cases or small samples. Variation of the phenomenon, looking at the phenomenon under different circumstances, is a central strategy within phenomenological analysis but the finding of similarities within the variations leads to generalizations.

The main idea was that from the beginning of data collection the material analysed by coding in a sense of interpretive theory development. The first results lead to considerations what further material (including new interviews, field observations, and documents) needed to confirm or support or critical check the first results. Epistemologically, this was for reproducing and interpreting the related information they embodied. Finally, incorporation of quantitative-like procedures, such as data prescriptive coding systems, selective coding, and code counts was useful (Bruce 2007).

Previous literature review and relevant documentary analysis in document two, were important contributions to this approach. Memos were formed in the researcher's consciousness as raw data reviewed as well.

3.2 Interviewing method

Key informant interviews, chosen by the researcher because of an important or different viewpoint, placing an emphasis on listening and following the direction of the participants. Such experts in project management participants provided the researcher with information through verbal interchange or conversation. Non-verbal behaviours and the interview context were noted by the researcher and became part of the data as well.

The plan for in-depth interviews contained target groups from business environment in Greece service sector. Organisational strategy and project management are very large areas of research, so the boundaries initially limited to an adequate sample of 15 interviews in large Greek organisations through PMI Greek chapter members as well as through other channels of local Greek trade unions of organisations. The main aim of those groups be conducted was to gather qualitative data by exploring extensively their strategy and project management activities. Those formal interviews collected opinions, experiences, and feelings of individuals producing subjective data by describing social phenomena as they occur naturally in business world. Such were story telling, critical incidents, personal opinions, business projects' stories. Several forms of data collection were used, including interviews, consent forms, written replies entries by participants via e-mails and organisational documentation observation from a large banking services organisation.

Observation was used in order giving additional information in reflection and crosscheck with the data collected from interview process. For example, in interviews, participants was asked about how they behave in certain situations but there was no guarantee that they actually do what they say they do. Observing them in those situations was more reliable. It was possible to see how they actually behave. Observation also served as a technique for verifying or nullifying information provided in face-to-face encounters (Hancock 2002).

Using confessional ethnography

Ellis (2004) suggested confessional ethnography approach, to collect original tales from the research participants. Confessional ethnography often seems to tell more about the teller than about the situations studied. One of the problems with such personal narratives is that they always raise more questions-questions that the author probably will not write about in the first

place for good reason. Such information was collected through direct encounters with individuals, through one to one interviews (and group interviews) and by organizational observation as well. For a more thorough assessment, both methods were involved in order to include personal interviews in addition with observation, artefact collection, and widespread inputs.

Formulation of interviews

The interviews structure was in three forms. These were oral histories of project management implementation, personal narratives, and topical interviews. As Madison (2005) stated all forms overlap, each other and topical interviews in turn should be more appropriative as they will give more attention to particular subjects and issues. The Interviewees described phenomena as events, situations, experiences, or concepts that they have witnessed or lived by their own. There was a value in the researcher while listening to interviews, as was able to figure out any muffled words. This approach attended to fill the gap of the lack to understand of such influencing factors phenomena might exist because they have not overtly described and explained or the understanding of their impact was unclear.

Participant's categories

There was fifteen (15) participants in different organisations which investigated through qualitative research inteviews and one large organisation (banking services) under observation. All participants' organisations belonged to service sector and were from banking, insurance groups and organisatrions offering IT project management services.

Initially, participants from those organisations communicated via e-mail or by phone for their agreement to participate to the interviews. The sample of the interview letter contact is illustrated in appendix 5. These contacts led to additional interviewees as per the snowball sampling technique in every participated organisation. Where possible, paired participants interviewed, e.g., a project manager, a business manager and executive from the same company or an executive and a consultant who had sold project management services to that firm. The aim was to collect at least 15 responses, from those representative business sectors according to the layers of the research conceptual framework. The selection of participants was from each of the organisations, targeting people in roles related to those layers and functionalities in the organisations. There was a categorization in groups of upper management (Strategic decisions and planning), middle management (program and project management), and functional areas management (external or internal project management consultants/experts implementers). Interviews with participants took place separately. In a detailed approach, participants were one of the following three categories:

- Senior and Business Managers (Executives, Chief Executive Officers, Chief Financial Officers or Vice Presidents) the influential group of individuals making strategic decisions on to implement or not implement projects.

- Program and Project Managers/Practitioners (Project Management Office Managers, Project Managers or Directors of Project Management)—those championing/selling project management largely in the context of their own organizations.

- External or internal Project Management Consultants/Experts implementers (Small and Large Independent Sellers)—experts whose experiences included both successful and unsuccessful results in project management to organizations.

It strongly believed that confidential interviews with executives would be a more reliable method for the collection of information, because according to the psychological mixed reaction of different people (from a general approach); it is easier to express their opinions when they talk rather than when they write down the answers (Saunders et al 1998). This method was applicable only in local organizations' contacts. There was structured interview meeting schedules with organisations representatives. Timing illustrated in Appendix 2. In addition, for tracking reasons a contact diary kept.

The fifteen (15) interviewees' profiles

1. L. B. is a General Manager in Greek group of small banks of 3000 staff and about 130 branches. His 29 years of experience in service organisations and business projects was very important.

2. L. M. is a project manager in Greek group of small banks of 3000 staff and about 130 branches. His has 21 years experience on implementation of projects on banking IT systems.

3. F. G. is a CCO of a consulting organisation of 120 staff, specialized in business and IT projects. He has 23 years as project manager on various businesses and IT projects.

4. G. S. is an executive project manager in consultants BPR company of 100 staff.
He has 25 years in project management as consultant in large service organisations.

5. G. K. is a Head of IT department in development of IT business projects in a large European financial organisation with 30.000 staff. He has 25 years experience in various IT projects related in business projects.

6. G. P. is a project manager in the largest bank organisation in Greece with more than 10.000 permanent staff. He has 22 years in various banks and business projects as analyst and project manager.

7. K. S. is project and communication manager in an IT services organisation of 150 staff. He has 19 years experience in various businesses and IT projects.

8. X. L. is an IT manager in a large Greek insurance organisation with 4500 staff, running large IT infrastructure and business products development. He has 22 years in business and IT fields.

9. M. K is working as project manager in a large software services international organisation with 80.000 staff, running various IT projects for business purposes support and development. She has 15 years experience in this field.

10. N. S is an IT Head in a large international bank organisation with 105.000 staff running various large projects. He has 32 years in various fields of banking sector, IT and business divisions as well.

11. K. A. is working as business project manager in local Bank in Greece with 5000 staff. He was consultant IT project manager worked in various projects in different banks before his current position. He has 26 years experience as IT project manager.

12. N. L. is a project manager in a large international bank organisation with 2000 staff, running various large IT projects. He has 30 years in total in various businesses and IT areas related projects.

13. D. A. is a project manager in a large software services international organisation. He is running various IT projects supporting business needs. He has 20 years experience in the field.

14. P. P is working in a large baking sector with 3500 staff, as IT development manager. He has 23 years in business and IT projects.

15. T. M. is working as product manager in a large banking services organisation with 150 staff. He has 24 years experience in various large businesses and IT projects.

Participants' experience in business and project management, percentage average is illustrated in table 3.1 and graphically is presented in figure 3.2. In this analysis, observed that most of participants had experience more than 20 years in business and project management. Participants with less than 15 years experience removed from the interview list and schedule.

Participants	Years of Experience
1	29
2	21
3	23
4	25
5	25
6	22
7	19
8	22
9	15
10	32
11	26
12	30
13	20
14	23
15	24

Years of Experience Categories	Participants
15 - 19	3
20 - 24	6
25 - 29	4
30 - 40	2
Total	**15**

Table 3.1 Participants experience and categories

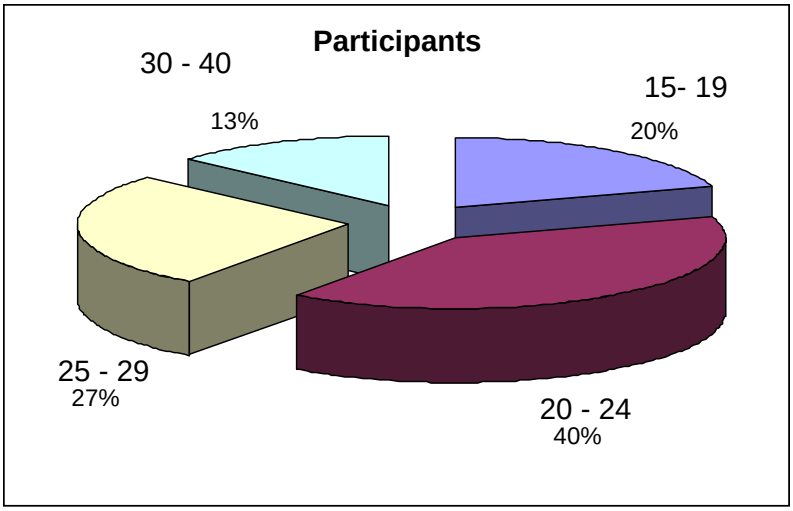


Figure 3.2 Participants years of experience percentage average

Open-ended questionnaire construction and the interviewing process

The interview questionnaire was open-ended and the development is based on the conceptual framework structure as well. In order to elicit the most possible information in the available time a variety of open-ended questions were chosen. The semi-structured interviews (sometimes referred to as focused interviews) involved a series of open-ended questions based on the topic areas wants to cover. The open-ended nature of the questions defines the topic under investigation but provides opportunities for both interviewer and interviewee to discuss some topics in more detail. If the interviewee has difficulty answering a question or provides only a brief response, the interviewer can use cues or prompts to encourage the interviewee to consider the question further. In a semi-structured interview, the interviewer also has the freedom to probe the interviewee to elaborate on the original response or to follow a line of inquiry introduced by the interviewee. Semi structured interviews tend to work well when the interviewer has already identified a number of aspects he wants to be sure of addressing. The interviewer can decide in advance what areas to cover but is open and receptive to unexpected information from the interviewee. This can be particularly important if a limited time is available for each interview and the interviewer wants to be sure that the "key issues" will be covered, (Hancock 2002).

A tightly structured schedule of open-ended questions is used like a driving questionnaire. There were questions emerged during an interview. During the interview the original questions were expanded in more detailed questions if required, allowing for a range of responses. The researcher phrased in such way the questions that a limited range of responses elicited. This helped the respondents to keep in the required limits their answers.

According to Fisher (2004) those interviews from one perspective can be perceived as semi-structured as the researcher has a schedule of questions related to the research subject. Semi-Structured questions were used because of the research requirement to quantify in some way the research material, but also to compare the views and experiences of participants. Using this method, participants had much latitude to respond to the questions in ways that seemed sensible to them. Therefore, the interviewees were asked to think of occasions in their working life when they had to deal with such a particular kind of issues based on those questions in appendix 1.

This provided the opportunity for both interviewer and interviewee to discuss some topics in details. If the interviewee had difficulty answering a question or provided only a brief response, cues or prompts were used to encourage the interviewee to consider the question further. One of the benefits by using this method is that there was a freedom to probe the interviewee to elaborate on the original response or to follow a line of inquiry introduced by the interviewee.

During the interviews, the whole conversation was open and receptive to unexpected information from the interviewee. This is particularly important but not always applicable if a limited time was available for each interview as there was a need to assure that the "key issues" covered. Another procedure that was tried during interviews was constant comparative analysis. This was a process whereby data collection and data analysis occurred on an ongoing basis.

The researcher conducted the first interview, which was unstructured. The interview then was transcribed and analysed as soon as possible, certainly, before the next interview took place, and any interesting findings were incorporated into the next interview. The process was repeated with each interview. Hancock (2002) suggested when using this procedure it is quite possible that the initial interviews in a research projects will be very different to the later interviews as the interview schedule has been continuously informed and revised by interviewees.

The interview process was started with the explanation of the scope of the research project. The researcher gave a written consent to the participants, for the confidentiality of gathered information and asked them to sign off it. Interviews were audio taped and then was transcribed for data analysis. Transcription of interviews was produced in several ways. Word-for-word transcriptions were best, but they were laborious. Also word-for-word transcriptions was used for some sections only and others were summarized during typing up

the interviews. The tapes of the interviews were listened several times in order to better discover what sections were important enough to transcribe, which sections were needed to be summarized, and which sections should be ignored. Finally, it was suggested assessing the results according to variation method of Delphi technique as well.

The qualitative interviews required participants to answer between three and five open-ended questions. That questions, most of which formed prior to the interview were influenced from documentation observations as well. Three experts in project management protested the research questions. This was to ensure that they were meaningful and capable of extracting the information needed. Those experts were consultants, and executives. The researcher was present on 100% of the interviews for validation purposes. The researcher kept timing and promised to give a feedback at the end of this study. The qualitative questionnaire is illustrated in appendix 1 and 4.

In parallel, observation took place helping to gather information from organisation's documentation. This was achieved by inquiring in the middle of an ongoing implementation of strategic project through the implementation process (Action research).

3.3. Qualitative research issues

General qualitative research issues

The main issue was to consider the appropriateness of a qualitative approach method in the chosen field of investigation. Nevertheless, can here more general inferences been drawn from collected data? Are the results of such a study valid not only for the study but for the population on which the research question wanted to make statements? Qualitative research have always been discussed how to evaluate the quality of produced analyses and theoretical interpretations of data. There is a disagreement, however, over the terms used in these discussions: validity, reliability, rigor, and parallel terms such as trustworthiness, credibility, transferability, verisimilitude, relevance, plausibility, and confirm-ability. Researcher generally understands validity as "the trustworthiness of inferences drawn from data" (Freeman et al 2007).

Timing

Generally, qualitative data collection has an intensive and time-consuming nature so it necessitates the use of small samples. For this reason, different qualitative sampling techniques were used seeking information from specific companies in the target PMI

membership population. One of the most important issues was the need to give a great care in order to involve only highly qualified and knowledgeable respondents, as it might be unreasonable to expect one individual in an organization to have sufficient knowledge to answer interview questions that addressed practices in all dimensions of this research subject. Further, there was always a possibility that many organizations might adopting multiple business and project management processes or methods, adding to the challenge for an individual to provide a single accurate response.

Another issue was that if the interview schedule was too tightly structured this might not enabled the phenomena under investigation to be explored in terms of either breadth or depth. Commonly those qualitative interviews were informal while interviewees should feel as though they are participating in a conversation or discussion rather than in a formal question and answer situation. However, achieving this informal style was dependent on careful planning and on skill in conducting the interview by the researcher of this study.

Target research population

A common criticism for this kind of qualitative research approach method might be that the results of this study might not be representative of a large population because the sample group was small and the subjects not chosen randomly. However, the original research questions may have sought insight into a specific subgroup of the interviewed or observed population, and not the general population because the subgroup is “special” or different from the general population and that speciality is in the focus of this research. The small sample may have been necessary because very few subjects were available in front of time limits and research subject nature. In this case, generalisation of the findings to a wider, more diverse business population is not the aim of current research. Therefore, any further clarification or illumination of research subjects was of benefit. There was not necessarily to provide definitive explanations but this raised awareness and increase insight knowledge on them.

Interventions

From another point of view, common themes and shared perceptions about implementation of strategy through project management might become apparent, so little new information might emerge thereafter. In addition, recurring patterns might emerge during the interviews. In this case, interview might change direction accordingly in order to cover such new information. In addition, interpretation from project management perspective - one research part perspective - might be a misinterpretation causing confusion. For this reason, there was a need to check again interpretations with informants thereby validating the data before presenting the final findings.

Validation of qualitative research

Research, whether quantitative or qualitative was based on some underlying assumptions about what constitutes 'valid' research and which research methods are appropriate. In order to conduct and/or evaluate qualitative research, it was therefore important to know what these (sometimes hidden) assumptions were. Validation of qualitative research findings and results was in various ways of check. Divergence from initial expectations by personal notes kept from the beginning to see how the data have pushed from initial assumptions. This is achieved by convergence with other sources by triangulation and comparisons with the literature. Alternatively, by stating extensive quotations from field notes, transcripts of interviews, other notes, archival data and recordings (audio). Finally, member check, where could go back to those researched, at the completion of the study, and ask them if finding are accurate or need correction/elaboration on constructs, hypotheses, etc.

Reliability and validity.

The validity and reliability of qualitative research depends on the researcher's skill, sensitivity, and training in the field. By using triangulation, the results from interviews and observation compared, to check for consistency in answers and attitudes (Winget 2005).

Observation served this approach as a technique for verifying or nullifying information provided in face-to-face encounters. Techniques for collecting data through observation were some written descriptions and organisational documentation. Observations were on people, a situation or an environment by making notes of what has observed.

The issues here were such as the researcher missed some observations because of writing about the last thing noticed. Secondly, the researcher gave attention by focusing on a particular event or feature because they appeared particularly interesting or relevant and missed things which would be equally or more important but their importance recognised or acknowledged at this point of time.

On the other hand, a wide range of organisational written materials produced qualitative information. They were useful in trying to understand the philosophy of researcher's own organisation. It included policy documents, mission statements, annual reports, minutes, or meetings, codes of conduct, etc.

According to Fisher (2004), the current method of observation belongs to «unstructured observation – with a very open approach and with low degree of structure. A research diary

was kept from the start of the document three and all kinds of research related subjects have already noted.

Generalization and deduction of theories

The procedure of generalization seems to be the kernel of all scientific work, a basic attribute of scientific knowledge as the aim of science. As Figure 3.3 illustrates, from single observations, is tiring to draw inferences to extend general formulations to future situations. The formulation of more general statements is only possible by abstraction. This conclusion called induction. The general formulation can linked with other, formerly developed general formulations to a network of statements, a theory. The advantage of those theories is that we can apply them to new situations, so we do not have to explore over again. This conclusion called deduction. (Mayring 2000).

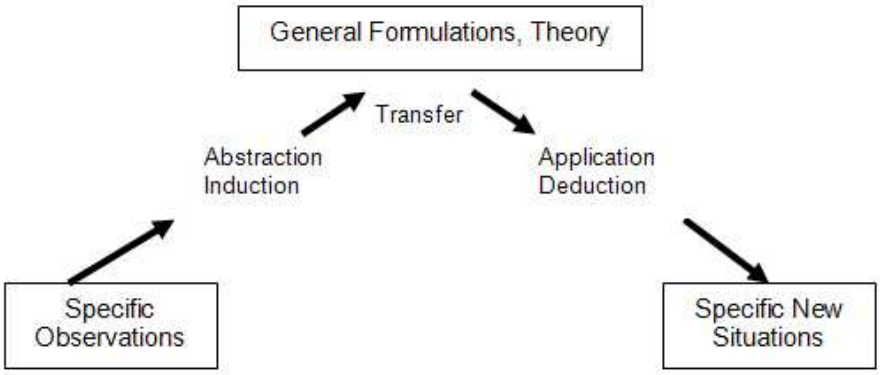


Figure 3.3 The process of generalization (Mayring 2000)

Research ethical issues

The researcher conducted interviews individually, on a one-to-one basis. Each interviewee initially was asked broad and open questions across four areas with the intention that these would provide a vehicle for open, transparent discussion from which could obtain knowledge of the interviewee's experiences. It was choosed deliberately not to ask questions requiring the revelation of sensitive or confidential information. Prior to each interview, each interviewee was provided with a plain-language statement outlining the project objectives and approach. This statement also specified all of the measures undertaken to protect their privacy and the security of data provided by the interviewee, including any tape recordings of the interview. In all cases, any measures with the interview subjects were discussed and they have

asked to give their consent to commence with the interview. The researcher assured them that used the following privacy and security of data measures:

- All interview data will be stored in a locked filing cabinet located in the author's home for a period of seven years.
- The data storage medium includes all formats utilized, including electronic materials handwritten notes, and audio tape recordings.
- Data captured during interviews will remain private and will not be available to the public nor will sale them. It will also not re-use them without the express prior permission of the interviewee.
- The researcher will destroy all original data in terms of transcripts and recordings after a period of five years.

Negotiation of access was requested from all organisations through personal or via e-mail communication. The researcher asked for permission to access to the selected organisations' data. Participants were informed in order to understand the processes that engaged according to the scope of this research via e-mail and by direct call. Voluntary participation was requested from the organisations and participants were assured that they will not coerced to re-engage if they decided to withdraw. The researcher gave the opportunity to participants to express their issues of concern regarding the research documentation. Those interviews were audio taped in order to facilitate the compilation of data highlighted at the outset of every interview and participants given the choice to decline. Confidentiality and anonymity was assured for participants' data as the norm for the ethical conduct of the research. The gathering of this research data had a disclosure of names, addresses, occupational and a location detail avoided.

All material gathered during this research were treated as confidential and were stored by a secure method. It was clear to participants that first, information will shared with other academic researchers under strict terms and conditions. It was important to demonstrate this confidentiality agreement by obtaining written consent from all participants in order to use the information for the present research. Therefore, because of the broad and non-specific nature of both the topic and the questions posed during the interviews, and the measures have taken to safeguard the interests of the interviewees and the data captured, have assessed, and approved this project as "no risk".

Next step: The qualitative analysis

The next step was to collect relevant information assesses, classify, and filter them. In addition, the researcher continued to perform a theoretical analysis of recent literature. The measures of the study were based on two primary quality factors. These are first, the reliability and the scientific trustworthiness of the obtained information and on their repeatability. Second, are the validity and the advantage of the research methods but also as well as the quality and accuracy of the collected information. The data were produced from social interactions. They were therefore constructions or interpretations. There were no “pure,” “raw” data, uncontaminated by human thought and action, and the significance of data depends on how material fits into the architecture of corroborating data. Data analysis led to a reconstruction of those findings. In research, claims were statements of meaning grounded in evidence and theory.

According to Freeman et al (2007) claims describe, interpret, deconstruction, critique, predict, and explain lived experience. Claims are statements that connected the world bounded by our data to our interpreted understanding of that data.

Approach to interpretive process

Interpretive approach according to Wilson (1970) referred to a sociological paradigm that based on theories like symbolic interactionism, phenomenology, hermeneutics, ethnomethodology etc., positions that stress the importance of investigating action and the social world from the point of view of the actors themselves. In a Kuhnian sense, this interpretive paradigm was supposed to substitute the "normative paradigm", represented by structural functionalism or rational choice theories. Qualitative research is supported by and dependent upon a line of thought that is orientated towards meaning, context, interpretation, understanding, and reflexivity (Knoblauch 2005). According to Strauss et al (1990) the analysis should focused on identifying trends or themes related to successful implementation strategies as gathered in the interviews so that patterns could identified and mapped.

3.4 Modes of interpretive analysis

The analysis of qualitative data is primarily an inductive or deductive process, meaning that the researcher endeavors to discern patterns in the data rather than formally test pre-determined hypotheses. The result is typically a detailed account of particular phenomena, a list of propositions, or the construction of a typology indicating how one set of salient variables related to one another through the development of an integrated framework. Modes

of analysis are different approaches of analyzing and interpreting qualitative data, as they are concerned primarily with textual analysis.

Using Denzin's six phases

Denzin (2001) suggested six phases or steps in the interpretive process. By using them, the researcher had more clear and harped focus and understood through the location of meaning in the experiences of interacting individuals. This was from another point of view the suggestion of Denzin (2001) of the steps required in the interpretive process. The analysis of this study was based on it as well, for the interpretation of the phenomena observed.

1. Frame the research question. In this phase, construct the interview questions according to the strategic and research questions in reflection to the conceptual framework model and the influencing factors.

2. Deconstructing and analyzing critically prior conceptions of the phenomenon (Derrida 1981). (Derrida's earliest work, including the texts that introduced the term "deconstruction," dealt with the phenomenology of Edmund Husserl. According to Jacques Derrida (1976), "There is nothing outside of the text". That is, text thought of not merely as linear writing derived from speech, but any form of depiction, marking, or storage, including the marking of the human brain by the process of cognition or by the senses.

3. Capturing the phenomenon, including locating and situating it in the natural world and obtaining multiple instances of it. In this phase, formal interviews took place, in order to achieve detailed research information of tacit knowledge and experiences from organisations' representatives. In parallel observation helped to collect information from documents and other related activities.

4. Bracketing the phenomenon, or reducing it to its essential elements and cutting it loose from the natural world so that its essential structures and features may be uncovered. This step is to locate the personal experiences story or self-story key phrases and statements that speak directly to the phenomenon in question. Then interpret the meanings of these phrases and try to obtain the subject's interpretations. In the next step is to inspect those meaning for what they reveal about the essential recurring features of the phenomenon studied. Finally, offer a tentative statement about or definition of the phenomenon in terms of the previous essential recurring features.

5. Constructing the phenomenon, or putting the phenomenon back together in terms of its essential parts, pieces, and structures. This stage based in the previous bracketing phase. This applied by listing the bracketed elements of the phenomenon, ordering them as they occur within the process or experience. Then indicating how each element affects and is related to every other element in the process being studied. Finally, stating concisely how the structures and parts of the phenomenon cohere into totality.

6. Contextualising the phenomenon, or relocating the phenomenon back in the natural social world. This performed by obtaining and presenting personal experience stories and self-stories that embody, in full detail the essential features of the phenomenon as constituted in the bracketing and construction phases of interpretation. Indicating how lived experiences alter and shape the essential features of the process. Comparing and synthesizing the main themes of these stories so that their differences merged into reformulated statement of the process.

Qualitative content analysis

According to Ballstaedt et al (1981), qualitative content analysis should develop procedures of inductive category development, which are oriented to the reductive processes formulated within the text processing. In other words, there is a need to create the directions of inductive approach analysis of the narratives and observations collected. Those should be oriented to reductive approach of analysis of texts as well. The material must analyzed systematically, following rules of procedure, devising the material into content analytical units. The aspects of text interpretation, following the research questions, classified into categories, which were carefully founded and revised within the process of analysis (feedback loops).

Qualitative content analysis procedures

From another point of view, the qualitative content analysis focuses on the empirical and methodological analysis of texts within their context of communication. These methodological and empirical rules recall the advantages of quantitative content analysis, and there are a number of specific procedures involved in robust method:

1) *Model of communication*: before beginning analysis, the researcher should decide which parts of the communication are under analysis; how the interviewer's preconceptions and

biases might influence data collection and the interaction between researcher and research participant; and the context of text production and reception (Winget 2005).

2) *Category Development*: The documentary material is analyzed in a consistent manner, following procedural rules.

3) *Category Application*: The categories of analysis are based on the research questions, and are refined by the process of analysis.

4) *Reliability and validity*: The content analysis procedure seeks to be valid across different researchers. (Freeman et al 2007).

Those procedures allow a connection to the next step of quantitative analysis. The procedures of qualitative content analysis seem less appropriate, if the research question is highly open-ended, explorative, variable and working with categories would be a restriction, or if a more holistic, not step-by-step ongoing of analysis is planned. Quality in research process while constructed should be maintained continuously throughout the life of the research project and include decisions that researchers make as they interact with those they study and as they consider their analyses, interpretations, and representations of data (Freeman et al 2007).

Development of categories

Development of categorical analysis units is an enigmatic process. The main question is how categories defined with this process. Krippendorf (1980) stated that little written about it. "*The Mystery though it might be, categories should be closely related to, and developed in terms of the text*" (Winget 2005). In order to fit the material into a model of communication, it should be determined on what part of the communication inferences shall be made, to aspects of the communicator (his experiences, opinions feelings), to the situation of text production, to the socio-cultural background, to the text itself or to the effect of the message (Mayring 2000).

The step model of category application

Assignment of the categories to specific passages in the text involves the development of explicit definitions, coding rules for each category, and determination of the circumstances under which a text passage can coded with a specific category. Figure 3.1 illustrates this systematic process. This is the step model of category application (Mayring 2000). The form that each of these steps takes varies dependent on such factors as the research question, the researcher's orientation to the question, and the setting and context of the study.

Deductive category application

Qualitative content analysis based on systematic text analysis, which tries to preserve the strengths of content analysis and develop qualitative procedures (inductive category development, summarizing, context analysis, deductive category application) which are methodological controlled. Deductive category application works with prior formulated, theoretical derived aspects of analysis, bringing them in connection with the text. The qualitative step of analysis consists in a methodological controlled assignment of the category to a passage of text, (figure 3.1). Even if several procedures of text analysis are processing that step, described poorly.

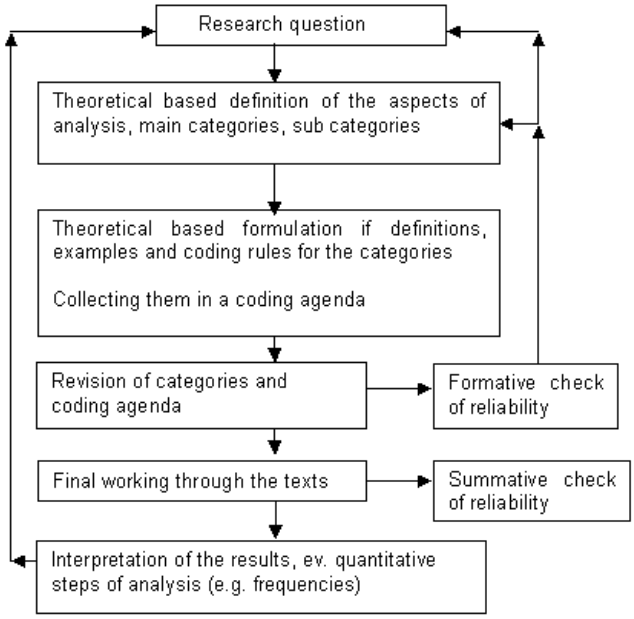


Figure 3.1 Step model of deductive category application (Mayring 2000)

Comparison with literature review findings

This procedure had the pretension to be inter-subjectively comprehensible, to compare the results with literature review findings of document two, in the sense of triangulation, and to carry out checks for reliability. Within the framework of qualitative approach, the aspects of interpretation and the categories developed, as near as possible to the material, and formulated in terms of the research material. Therefore, the main idea of the procedure was to formulate a criterion of definition, derived from theoretical background and research question, which determines the aspects of the textual material taken into account. Following this criterion, the material is worked through and categories are tentative and systematically deduced. Within a

feedback-loop, those categories are revised, eventually are reduced to main categories, and checked in respect to their reliability (Mayring 2000).

Using analytic deduction method

Generally, content and conversation analysis assumes that the words or idiomatic expressions themselves speak a meaning and suggests searching for structures or patterned regularities within the text at the word or phrase level. Formal definitions of content analysis vary, but the general assumption is that intention and meaning are discoverable in the frequency with which words, phrases, idioms, or ideas occur in a text and the meaning can captured in a set of predefined content variables. Meanings were assumed be inherent in the word or idiom. Likewise, the analytic deduction method helped to the analysis by looking at an event and developing a hypothetical statement of what happened. Then looking at another similar event and see if fits with the hypothesis. If it is not, then hypothesis revised. Next step was to start looking for exceptions to hypothesis, and when found them, hypothesis then were revised to fit all examples encountered, (Katz 1983).

Coding the qualitative data

As there was a theoretical conceptual framework for pre-coding, there was also a need of a method of identifying and labeling (coding) items of data, which appeared in the text of a transcript, so that all the items of data in one interview were compared with data collected from other interviewees. Therefore, the basic process of analysing qualitative data done by labeling or coding every item of information so that it was possible to recognise differences and similarities.

Using a combination of analysis methods

On the other hand, analysis combined with other qualitative procedures. The research question and the characteristics of the material should have the priority in the decision about adapted methods. From a procedural standpoint, such narrative research typically involves careful analysis of recorded and systematically transcribed language. When identifying the traditions from which narrative and identity conceptualized, it becomes possible to assess the strengths and weaknesses of the approach and of the argument made (Juzwik 2006).

Using various coding techniques

Coding of qualitative data required different techniques and qualitative analysis typically proceeded in a sequence of steps. Before identifying themes and typologies, first the data

were coded and was sorted into a finite number of categories. Those categories eventually became the key variables used to analyze similarities and variations within the data. Collectively, those codes enabled the researcher to manage a complex process of data analysis and became more refined over time, moving iteratively from general to specific refinements of key variables and the relationships and influence between them. The codes themselves became more focused as the analysis proceeded, their veracity justified by their capacity in order to explain a wider array of the data (Lofland et al 1995).

Coding by "microanalysis" method

A variant of Grounded Theory was described by Strauss and Corbin (1990) used, who suggested three (partially in parallel) activities for data analysis. Strauss & Corbin (1998, pp. 65-68) recommended coding by "microanalysis which consists of analysing data word-by-word" and "coding the meaning found in words or groups of words". "Codes are theoretical, not just descriptive and they reflect concepts which have potential explanatory value for the phenomena described" (Strauss et al1990).

Using axial coding method

By using axial coding, the relationships between the concepts were identified and were described by these codes. Finally, by using selective coding where appropriate, the subsets were extracted from the concepts and any relationships thus found formulated into a coherent category. Phenomena (and their contexts) were compared and were observed many times in order to create codes that were precise and consistent. A number of relevant phenomena regarding influence factors and links between the phases of project management context in participant's narratives and observation information were collected detected and encoded. This action adapted with Denzin's (2000) six phases of analysis and Derrida's (1981) deconstruction by analyzing critically prior conceptions of the phenomenon.

Some times the researcher was uncertain about when to finish the analysis. Glaser (1978) discusses saturation as the key to knowing when to stop. However, it took many attempts before it was at all confident when to stop the analysis and form the category. Latterly found that could allow category to emerge right from the start.

Coding by using constant comparison method

On the other hand, contemporaneously, constant comparison (Strauss 1987, 1998) was used by looking at findings for indicators of such categories in events and behaviour by naming

and coding them and by crosschecks with the current conceptual framework. Then codes compared in order to find consistencies and differences. Consistencies between codes (similar meanings or pointing to a basic idea) revealed new categories, so there was a need to categorize specific events. Therefore, a memo was used on the comparisons to emerge categories. Categories were saturated when no new codes were related to them. Therefore, certain categories became focused, more central as axial categories and core categories. Categories in turn were: a) inclusive (all examples fitted in a category), b) mutually exclusive and c) defined precisely. Finally, all data fitted in some category. It was started by reading all way through, and then the rules were specified. After determination of categories, a counting was started on how often the categories were occurred (Weber 1990).

Coding by using continually comparing concepts method

During the analysis of an interview, the researcher was aware that the interviewee was using words and phrases that highlight an issue of importance or interest to the research. This was noted and was described in a short phrase. When an issue mentioned was reappeared again in the same or similar words, it was noted again. This process called coding and the short descriptor phrase was a code. By comparing each concept in turn with all other concepts, further commonalities was found which were formed the even broader categories. Glaser & Strauss (1967, pp. 105-115), described this method of continually comparing concepts with each other as their "constant comparative method". This was used as an open coding describing the data by means of conceptual (rather than merely descriptive) codes, which derived directly from the data.

3.5 Methods used for qualitative interviews' data analysis

Content analysis and production of transcripts

After the implementation of interviews, a tape analysis method was used from a playback of the tape-recorded interviews, making notes of the sections in the paper, which contained particularly useful information and key quotations. Full transcripts were produced only of the first interview data. Analysis of data achieved by summarising the mass of data collected and the results were presented in a way that the most important features communicated (Weber 1990).

This process called content analysis (Hancock 2002). The procedure was the same whether the qualitative data had collected through interviews, or observation since it was concerned with analysis of the texts In this case, transcribing was a time consuming process as the estimated ratio of time required for transcribing an interviews was about 5:1.

The study of the individual's recorded interviews

There was a study of the individual recorded interviews and overlapped with other approaches. For example as discourse analysis looked at interaction, narrative was more individual. The story was what an interviewee shared about self-experience and core plot in the story told about the subject of the question asked. This was as a study referred by Reisman (1993), of participants' autobiographies by comparing them with other findings.

Truex (1996) stated that organizational life takes place in language. It is the process of meaning creation and of meaning sharing. Meaning generation is work in process. Thus, as a continuous process of meaning creation and enactment may see the interactions that constitute organisational life as a form of organizational 'text', which may also be subject to, forms of textual analysis.

Narratives as raw texts were perceived as product and as process. As processes can be grasped through seeing 'texturing', making texts, as a specific modality of organisational action, of production or 'making' (of meanings, understandings, knowledge, beliefs, attitudes, feelings, relations, personal identities). The focus should be on 'logogenesis' (Iedema 2003), including the texturing of entities (objects, persons, spaces, organizations) which can give certain preconditions, be dialectically internalized (enacted, inculcated and materialized) in non-discoursed elements of organisational life.

Using conversation Analysis

Conversation analysis, in contrast to content analysis, does not presume the existence of fixed meanings in words and idioms. It presumes meanings in layers of contexts, negotiated interpretations, and life-world knowledge, embedded. Grounded on the assumptions of philosophical hermeneutics, meanings are understandable through repetitive readings and interpretations of a text. Meanings were developed through iterative, continuing conversations in which actors have built up layers of shared interpretations.

Using Metaphorical Analysis

Metaphorical analysis helped in later stages of an analysis as well. This method was tried on various metaphors and checked how well they fit on what observed. In addition, participants were asked for metaphors and were listened for spontaneous metaphors. The validity of metaphor was checked with participants' involvement (Smith 1981). However, like conversation analysis multiple readings and analysis of the records allowed the crosschecking of interpretations through iterative "hermeneutic circles", thus improving analytic rigor and

inter-coder reliability. Much of what constitutes organizational life resembles a discourse. Finally, event analysis or microanalysis gave an emphasis on finding precise beginnings and endings of events by finding specific boundaries and things that mark boundaries or events. After finding the boundaries, was tried to find phases in event by repeated viewing (Erickson 1992).

Using typological analysis

Eventually a hypothesis was developed to account on all observed cases from the large financial organisation. Therewithal, content analysis was used for the development of categories and is considered as a specific form of typological analysis. This mean, looked at collected documents, text, recorded interviews' notes, and other collected information and found any themes emerged. This means in other words what did interviewees talked about the most and saw how themes have been related to each other in reflection to the observation findings as well? Over and above, latent emphases and various views, which were implicit or looked at surface level, with an overt emphasis, were found successfully. This comprehensive method was theory driven in background, as theory determined what to look for base on rules that specified for the specific data analysis and based in already developed conceptual framework. Standard rules of such content analysis include: How big a chunk of data were analyzed at a time, such as a line, a sentence, a phrase, or a paragraph, be stated, and stood with it and finally, which were the units of meaning and the categories used (Lofland et al, 1995).

Using explanatory typology

In turn, in crosscheck, by using a typology method all empirical data were coded by falling into one category or another. An explanatory typology as a classification system was taking information from patterns, themes, or other kinds of groups of data (Lofland et al 1995), based on an explicitly stated pre-existing theory. In turn, that theory originally was derived inductively from literature review and observations. It was primarily a complement to deductive approach, because filling in the categories of factors required, working through the logical implications of the findings. Given its posited causal relationships, particular outcomes were associated with different combinations of values of the variables. The dimensions of this space provided by the influencing factors, and the content of the categories came from the logic of the theory analysis (Elman 2006).

Using taxonomy

In the same way, taxonomy or domain analysis, helped as a sophisticated typology to use multiple levels of concepts (Spradley 1980). This means higher levels inclusive of lower

levels used and super-ordinate and subordinate categories were created. Such analysis helped for the deconstruction of project management issues through each of the factors' categories.

Using quotations

Quotations were extracted from the transcripts of interviews and observation notes, to illustrate those issues. They were used because they were good examples of what people have said specifically about the category being described. Ranges of quotations were selected to illustrate such features as the strength of opinion or belief, similarities between respondents, differences between respondents and the breadth of ideas. As the researcher worked through the different categories, the influences between categories were analysed to demonstrate how the issues were emerged and how conclusions about the findings were drawn. Careful selection of quotations demonstrated the reliability and validity of the data analysis.

Many of the quotations "spoke for themselves" as they were examples of the manifest level of analysis of what business people actually said. However, as previously mentioned, some analysis of data carried out at the latent or interpretative level that involved extracting the meaning of what was said (Hancock 2002).

Using a variation method of Delphi Technique

According to an article of Michigan State University (1994), (Turoff et al 2002), Delphi Technique was originally conceived as a way to obtain the opinion of experts without necessarily bringing them together face to face. The Delphi Technique was based on the Hegelian principle of achieving "oneness of mind" through a three-step process of thesis, antithesis, and synthesis. In thesis and antithesis, all present their opinion or views on a given subject, establishing views and opposing views. In synthesis, opposites are brought together to form the new thesis. All participants were then to accept ownership of the new thesis and support it, changing their own views to align with the new thesis. Participants were encouraged to put their ideas and disagreements on paper, with the results to compile later. This technique was another way of obtaining group input for ideas and problem solving. Unlike the nominal group process, the method did not required face-to-face participation. It used a series of carefully designed matrix-questionnaires interspersed with information summaries and feedback from preceding responses. In a planning situation, the variation of Delphi technique was used to explore underlying assumptions or background information leading to different judgments but also to seek out information on which agreement may later be generated and correlate informed judgments on a subject involving many disciplines.

Delphi variation technique began with the initial development of an assessment questionnaire based on findings focusing on the identified problem. A well-selected respondent panel was collected with a mix of knowledgeable individuals, members of project management community. The respondent panel was constructed from the current interviewees, and then the assessment rate questionnaire was mailed to them. Each participant was expected to answer the questionnaire independently and return it back via e-mail. The advantage using this technique was that it allowed participants to remain anonymous; it was inexpensive, free of social pressure, personality influence, and individual dominance. There was a reliable judgment or forecast results and in parallel it allowed the sharing of information and reasoning among participants. Therefore, was expected to provide a broad analytical perspective on potential growth impacts and used to reach consensus on different positions, among groups hostile to each other.

On the other hand, the disadvantage of this technique was that judgements of the selected group of people might not be fully representative. It also had the tendency to eliminate extreme positions and force a middle-of-the-road consensus. It was time-consuming than other process methods as it required adequate time and participant commitment (about 30-40 days).

Using Quasi-statistics

Another method incorporated in content analysis procedures to enhance objectivity and reflect the complexity of the data was the use of quasi-statistics. Quasi-statistics are "a tabulation of the frequency (or average) with which certain themes, relations, or insights are supported by the data. Quasi-statistics are counting the number of times something mentioned in field notes as very rough estimate of frequency. Often enumeration used to provide evidence for categories created or to determine if observations are contaminated (Polit et al 2004). Finally, by using logical analysis or matrix analysis a generalized causation presented as an outline by using diagrams, to pictorially represent those, as well as written descriptions where appropriate (Miles et al 1994).

Using the Delphi technique variation method, qualitative data were presented by a quantitative way (Quasi-statistics) with a cross web diagrams in conclusions chapter. If an idea appeared in the data frequently, it was feasible to measure how often it appeared so it was preferable and desirable by the researcher to present some of the results quantitatively.

Validation of findings with a variation method of Delphi technique and quasi statistics

There is only one reality although several perceptions of that reality must be triangulated to obtain a better picture of it. It may be feasible or even desirable to present some of the results quantitatively using tables and figures. Using qualitative and quantitative techniques for analysis of data can strengthen the analysis (Hancock 2002).

In order to assess the findings from qualitative analysis of participants' narratives and observation information collected a variation of Delphi technique was used. The objective of variation method of Delphi technique was the reliable and creative exploration of the links between strategy and project management process in reflection to the influencing factors as well, by making hypothesis by a systematic means of synthesizing the judgments of project management experts. This method was based on a structured process for collecting and distilling knowledge from experts on project management undertaken the evaluation of interviews' findings, by means of an assessment matrices. This was especially the case where the notion of triangulation invoked as a means of validation.

Selection of participants for the panel

The panel consisted by five project management experts. The selection of the panel of experts in project management was based in the following criteria: The participants should have great experience in business management and business projects so L. B. chosen. Experience in business projects and in different fields so L. M. chosen. Experience in large business projects execution, so G. K. chosen. Have a large view of projects in a large organisation so G. P. chosen. Finally, M. K chosen in front of experience in various organisations projects as she was working as project manager in a large software services international organisation with 80.000 of staff, running various IT projects for business purposes support and development. There was many which fulfilled this criteria, but those chosen had the most thorough and clear meaning narratives in interviews.

Respondents had self-identified themselves as expert and greatly interested in project management as PMI members. Finally, anonymity, controlled feedback, and statistical response were the main targets by using this method. Most of the responses from the panel participants were similar so found a positive consensus between them regarding the links and the influence factors under assessment. On the other hand, consensus was less important as a useful product of the method was the crystallization of reasons for different positions. As a result was an aggregate judgment representing a kind of composite expert composed of the expertise of all participants.

The process of influence factors assessment by a group of participants

The findings from qualitative analysis were sent via email to the panel members for assessment. Therefore, a cross impact analysis of influencing factors was developed as an extension of the method used. The final round was the assessment between factors relationship, through the cross-influence matrices by each of the members of panel. They were asked to assess and fill up the matrices according to their opinion and assess each of the factors influence level on the elements of "project management context" but in addition, the cross influences between them as well.

During this assessment, they were asked to have in mind and reflect the qualitative analysis findings presented to them. They were suggested from their experience to think first an example of affection on effectiveness of the «project management context» for each of the influence factors. Then, they were asked to rate the influence of this factor on each of the elements of «project management context», according to the rating scale. Secondly, they were asked to think how each of the factors might affect each other and in what level and then rate them accordingly using the respective matrix.

The first matrix was created to support the requirement for the assessment of the influence level of factors against the elements of "project management context" (business strategy, operating plans, portfolio, program and project management). The rating scale for the assessment of influence factors, against the elements of "project management context" was 1 to 5. The panel rated each of the factors against each of the elements separately. The level of the assessment based on a rating scale was 1 for low and 5 for high. The second matrix had a rating scale of 1-3 for the between factors influences assessment.

By using simple quasi statistics analysis, the average scores were calculated for each of the factors in both matrices. The average number of each factor were calculated as total final score. For example if there was three answers of rate 4 and two of rate 5, the average number on each cell of participant's assessment answers scores was 4.4, so the nearest number was the lower one which in this case the final score was 4. The same was happened for the assessment of between factors influences. In this special case, each of the participants expressed their own opinion directly in the assessment matrix. The assessment matrices, the rating scales, and the final calculated results are presented in appendix 7.

Concluding

The researcher currently utilized those qualitative analysis methods to conduct the required levels of analysis on the transcribed interviews for new ideas, themes, and concepts. This has enabled the development of a more focused and in-depth approach to the next phase of

quantitative approach of research. This phase also was entailed e-mail contacts of a panel for arrangement of the matrices assessment process based on the variation method of Delphi Technique. By this method was aimed at generalizing and elaborating, challenging, and, in some respects, validating the findings collected by the face-to-face interviews. The target was to provide concrete descriptions of important triggers, responses, and evidences to support the qualitative results in reflection with theoretical findings of document two.

4. Analysis of the material

4.1 The direction of qualitative analysis

In this chapter the qualitative data analysis, has the intention in reflection to the research concept to discover and identify, how a strategic direction is translated to operating plans, stepped up, and promoted to the sequential elements of «Project Management Context». An additional objective is to identify the relationship of those elements, reveal the situations of link between them, and assess their influence factors. Finally, categories and codes were developed during qualitative analysis logically reflect to the theoretical conceptual framework.

Current theories, perspectives, and interpretation are considered and reflected during data analysis. Relationships between concepts and their integration among meanings are emerged during analysis. Findings are described in reflection to theoretical concepts. This is performed in order to yield an integrated and meaningful picture of the research results. Concepts and relationships, reflected to theoretical conceptual framework are analyzed and are presented in separate sections covering each of the project management context-elements and each of their factors found. There was an indication that those codes were inclusive in collected data, so, they were appropriately assigned into categories.

4.2 Analysis of interviews and observations

During the implementation of interviews, frequently intervention took place by the researcher, with additional sub-questions, for better clarification of the answers and meanings given by the interviewees. The researcher took notes of responses and tape-recorded the interviews. The latter method was preferable for a number of reasons. The interviewer concentrated on listening and responding to the interviewee and not distracted by trying to write down all of what have said. The discussion flew faster, because the interviewer did not have to write down the response to one question before moving to the next. Tape recordings ensured that the whole interview captured and provided complete data for analysis. So cues that missed the first time recognised when listening to the recordings.

Current analysis based on transcripts, was created from answers to the open-ended semi structured questions and from the observational information collected from a large financial organisation. The researcher was familiar with the key messages that emerged from the data tape analysis. The tape analysis technique was used to take notes from a playback of the tape-recorded interviews extensively. The researcher listened to the tape and made notes of sections that contain particularly useful information and key quotations. Then, he returned to

these sections in the tape, for further analysis for creation of categories and appropriate codes. So transcripts used for producing a written version of interviews, but in more structured way.

It is important to note that each interview (sometimes two or three interviews) was transcribed and was analysed as soon as possible, certainly, before the next interview took place. If there were any useful information regarding interesting findings, they were incorporated into next interview. The process was repeated to each of the interviews. By using this technique found that the initial interviews were very different to the later interviews so the schedule informed and revised continuously. In this phase, Denzin's (2001) six phases was found very useful for the systematic analysis of information and revision of interview structure.

Formulation of categories and codes

The development of categories based on Mayring's (2000) step model. This was used in parallel with analytic deduction method. In addition, there was a comparison with theoretical findings of literature review as well. Within a feedback loop, those categories were revised and were reduced to two main categories and were checked in respect to their reliability. However, analysis had a sense in reflection to previous literature review.

The researcher started by labeling and coding every item of information so that it was possible to recognise differences and similarities between all the different items. By using such analysis, all the items of data that appeared in the text of each transcript, were identified and coded. They produced and compared between all other new and older transcripts.

The categorization of that data performed for the purpose of classification, summarisation, and tabulation. The content analysed on two levels. The manifest level of analysis was the descriptive account of data. This was what actually said with nothing assumed about it. The second level was interpretative concerned with what was meant by respondents, (what was inferred or implied). Such analysis involved categorization, coding, and classification of data as well. The struggle was to identify from transcripts the informative extracts of data and in parallel sort out any important messages, hidden in the mass of each interview.

Finally, all transcribed interviews were passed through a filtering process, according to analysis methods. The methods used were conversation, metaphorical, typological, explanatory typology, taxonomy, and quotations (from researcher's written notes or interviewers' any additional comments). In addition, it must be noted that the empirical and methodological analysis of texts was performed with a cross reference of information gathered by observation and literature review findings.

During analysis, the researcher was reading the transcripts and when something contained apparently interesting or relevant information found, a brief note in the margin was created about the nature of information. After this, by seeking through those notes, a list was produced, containing different types of information. That list of items was excerpted from the texts, and items that categorized and coded. The codes were produced from each text analysis. They identified many times through analysis of each of the transcripts. Finally, they were crosschecked within observation information and theoretical findings too.

This repeated to all subsequent transcripts. During this process, was observed that many items of data belonged to previously identified category codes. So, any relevant and interesting information were accommodated in the existing categories and codes. All items were assessed if they bear some relationship to each other. In addition, if there any extracts that did not fit and belonged in a different category was examined.

When the entire relevant transcripts of data were sorted into categories and codes, they were reviewed again within system of categorization. It decided if required, to move some of them from one category to another. Finally, all of the codes were assessed again if they were in the right category.

Some of qualitative data were dealt with a quantitative approach as well. This means if a code was appeared in the data frequently, was measured how often appeared. This was found useful for assessment and production of final set of influence factors.

This process may appear complex due to difficulty in deciding what data belongs where. To some extent, this is true. The analysis was involved by continually revisiting the data, by reviewing the categorization and codes, until the researcher is convinced that those categories and codes used to summarise and describe the findings. Moreover, this was until found them truthful and accurate in reflection to theoretical and observational findings as well.

The analysis led in two main categories: A) Project management context, B) Influence factors.

The following presentation is reporting what was meant by “The links between strategy and project management and their influence factors”. This is followed by identification and description of each of the two main categories. The researcher worked through those categories demonstrating of how the findings were emerged and how conclusions about them were drawn. The structure of presentation of results in the following paragraphs is performed

according to that categories hierarchy. The structure is set out as a list of presentation of findings (of project management context and influence factors). Each category is describing a range of items included in this category. The findings are presented in the next categorized sections by a discussion of each of the elements.

Further evidences to support those findings is provided using direct quotations from respondents. Therefore, key quotations are selected to illustrate the meaning of the data. Quotations are extracted from the transcripts of interviews to illustrate why or how this was a related information. Quotations are used because they are good examples of what people have said specifically about the category described. Specific quotations are selected to illustrate such features as the strength of opinion or belief; similarities between respondents; differences between respondents; the breadth of ideas. Many of the quotations "speak for themselves" as they are examples of the manifest level of analysis - what people actually said.

Through interpretation (realism approach) and formation of meanings in particular contexts from theoretical framework through qualitative analysis is leading now to the following results.

A) Project management context category

In this category, the collection of participant's narratives was by using the following interview question: Q1. «What is the process that your organisation is following for the implementation of a strategic decision? Explain the steps and the phases followed».

The analysis of transcripts of this category produced the related codes in table 4.1:

Strategy
Strategic Projects
Links
Decisions
Upper management
Plans
Operational plans
Portfolio
Program
Projects
Organisational success
Successful delivery of

projects
Prioritization

Table 4.1 Codes of Project management context category

Next step was the assignment of notions emanated from transcripts analysis by using the codes of table 4.1, to the appropriate «Project Management Context» section. All related explanations of findings, regarding the «Project Management Context», are presented in the following sections.

Links of strategy and operation plans

Most of participants during interviews asserted that strategies in their companies were formulated as plans of organisational directions. For meeting those outcomes, strategies were translated finally to projects through a flow of program management context. Those had specific targets representing measurable progress towards the goals of organisation strategy. In more details, it was explained that, after the formation of strategic direction, the plans were boosted down to organisation's division heads.

The Project Steering Committee was presented, as an executive level of those most influenced by the objectives of the projects. The latter found to have the overall governance of the strategic projects. Steering Committee was used for medium to large projects only. It was responsible for approving strategic projects and any major changes to the current project's scope, objectives, timelines, costs, and other key attributes. It was also called upon when significant project business decisions required, especially of a cross-functional nature. It was referred that the primary purpose of the project steering committee was to provide overall guidance and direction for a single project, or set of projects

Strategic operating plans were found to have embedded the vision and mission with values such as standards for conducting daily business, goals as efforts focused toward particular outcomes. They were found to be measurable by results expected from goal-setting processes (especially in banking sector). It is remarkable to mention that in some cases, was referred a break down of strategy process steps, into a series of projects, as in parallel a formal business project manager assigned to lead those strategic initiatives within portfolio management. This was applicable by using a hybrid method, most of times through portfolio of projects and development of individual programs, and sometimes direct through programs.

On the other hand, there was an attempt for creation of a project charter, for the business project manager, by clarification of roles, responsibilities, and accountabilities of all parties involved. Finally, was observed that in medium and large organizations, portfolio and program management processes were used more than in smaller size companies, for handling and managing the prioritisation of strategic projects. This connection was not permanent but almost all participants defended it.

The use of operating plans found to be obvious in most of organisations. Those plans, were designed in business language, and then were translated in project management language and were interpreted in individual divisional or departmental projects. The links between strategic directions and operating plans, were found with portfolio and program management as next step of their progress.

Links of portfolio and program management

In a great percent, interviewees maintained the stance of using portfolio management as a process for identifying projects' strategic prioritisation requirements.

They said that they used portfolio management in order to develop business cases for each project request, utilize governance workflows, and gain the required approvals. This was found helpful for them so they could objectively derive prioritization information to evaluate the competing projects and employ best practice optimization techniques. It was valuable in order to select the portfolio that best aligned with organization's business strategy.

The issue revealed here, was that all organisations frequently pursued many projects simultaneously. Almost inevitably, the number of small and large projects in a portfolio exceeded the available resources such as funds, equipment, and competencies. The main hypothesis from all participants was that politics exist in every organisation and can have a significant impact on project selection as well. On the other, hand some projects were sponsored by high-ranking executives. Nevertheless, many interviewees referred that when a project selection implemented and priority system was used in their organisation, they met enormous scepticism and resistance.

So, portfolio management was perceived as pre-phase of program management within the same teams involved. A special comment made here, was that strategy is perceived as a way to achieve organisational success and key to organisational success. There was a need to maintain a culture of strategic thinking and selection of portfolio projects by integration of new projects into an existing portfolio. In addition, there were some positions who claim that

project management is indeed about execution and it is really the responsibility of portfolio and program management to be concerned with strategy and business benefits.

By participant's perception, programs were found significant only when a budget or set of resources used to deliver a number of related results across projects. Finally, an important comment was that the right project selected from portfolio management before resources allocated and assigned to a specific departmental program.

From the previous explanations comes out clearly the situation of a link between strategies and operating plans with portfolio and program management processes. The requirement of continues integration of new projects into an existing portfolio for prioritization and re-prioritization of existing projects reasons, found irreplaceable part of «Project Management Context» framework.

Linking with Project management process

Project management process, was perceived as the final link of the «Project Management Context» elements. It was found linked with program management process as the final process of implementation of the approved strategic projects. It was stated also, that the successful delivery of a particular strategic project was coming reality through the project management process. Many participants as practitioners of project management expressed the view that project management was «*change management*" because all projects involved changes. The common stance of all interviewees was that project management process involves the following implementation phases: project initiation, project planning or design, project execution or production, project monitoring and controlling systems and project completion. Some times not all the projects passed through every phase, as projects could be terminated before they reach completion. Some participants mentioned that their organizations utilized a variation of these phases as well. Conclusively, the project management phases were found to follow the classical flow based on theoretical approach such as PMI (2004) standard. The variation was that sometimes project managers did not follow all phases in a strictly way, and passed through some phases very fast or avoided them. This issue was not explained clearly by interviewees for why was happened in practice, so, it did not analysed in depth, as it was not in the scope of this research. On the other hand, almost all participants referred that there were some factors, influencing the project managers to behave in such way. As most important were referred project «time» and «cost» factors.

Integration of «project management context» category findings

The inference emanating from analysis of transcripts presented in previous sections, regarding the links between the «project management context» elements, is adapting with theoretical conceptual framework logic of links' flow. Those links represent the connection, integration, and coordination of the flow of information and all those required activities between strategy and project management process. In other words, it means that the implementation of a strategic project has its own sources and originates form strategy formulation and operational plans, evolving through prioritisation in portfolio management to individual organisational divisions' programs. The final implementation is utilizing different variations of project management process in particular organisations.

B) Influence factors category

In this category, the collection of participant's narratives regarding influence factors was produced by the the interview questions:

Q2. According to your experience, which factors are influencing the implementation of a strategic decision?

Q3. Based on the answers from the Q2 question, which were the most critical factors by your experience?

Q4. By your opinion in what ways, those factors are affecting the implementation of a strategic project by using project management process.

Q5. What problems or issues did you faced during the implementation?

Q6. Can you describe any incidents came from upper management or operational support of the organisation, which affected the project management process?

The analysis of transcripts of this category produced the related codes in table 4.2.

Influence
Organisational strategy
Plans
Portfolio

Program
Prioritisation
Upper management
Culture
Politics
Knowledge
Human behaviour
Bureaucracy
Process
Environment
Ethics
Complexity
Communication
Project management
Information Technology
Stakeholders
Earned Value Management
Flexibility
Time
Cost
Quality
Risk management
Project Management Office (PMO)
Project management strategy
Maturity
Experience

Table 4.2 Codes of Influence factors category

Justification of influence factors analysis

Influence factors are perceived those variables which characterizing the relationship between strategy and project management, if that is fragmented, disconnected, and more or less integrated in a particular organisation. Based on analysis performed on interviewees' narratives, the following sections are remarks and references regarding each of the factors identified. The practice presented here, is the justification of each of the factors by giving

practical examples of their possible influences. Each of the factors is identified using the qualitative methodology used during the analysis of participants' narratives. Incontestably, there would be various influences as this depends on various situations and perspectives in organizational environment. The references and examples given in the following paragraphs were extracted from participants' narratives and their extensive explanations.

Organisational strategy and operating plans as an influence factor

Participants expressed their points of view, regarding business strategy for frequently changes in the organisational strategic direction. It was referred that there were many examples for "ruthless execution" or hard interventions in initial specifications of a project due to strategic direction change. This had an impact to the normal project process, producing vast re-planning effort, and reassessment of the project against their current projects portfolio and program as well. This had an impact in the total cost of the project as well. This factor was also referred as it has influence at the initial stage of strategic projects definition. According to analysis of participants' narratives, the impact of this factor was on the next phases of the «project management context» as well (the portfolio and program Management).

Portfolio and Program Management's projects prioritisation function as an influence factor

Participants referred that those decisions were taken during portfolio and program management as well, on which the projects should be implemented in specific priority. The prioritisation of projects during the processes of "project management context" elements was perceived as an influence factor. However, this was found having an impact on existing projects, in the current plan of portfolio and programs. According to participants' opinion the prioritization of projects was based on how a project fitted into organization's strategic initiatives. A priority system was used to ensure strong linkages between projects and the strategic plan. On the other hand, failure in the execution phase of project management phases often was cited as the primary place where strategy initiatives were awry. Typical participants' responses included "*We all have known which projects were the most important ones"*. On the other hand, sometimes all of the strategic projects were considered as important by upper management and project steering committee as well. This latter issue produced confusion on other projects' implementation in progress. This factor was perceived as a function being executed by of portfolio or/and program management, by the linked or embedded elements of «project management context».

Upper management consensus as an influence factor

Almost all participants figured out that strategy in their organisations formulated by decisions of the upper management (as constitute a project steering committee) by creation of forecasting operating plans for the next three to five years. According to analysis of findings, most of the participants stated that, some times upper management could not understand nor had the sense if the strategic decisions could be achieved with the current status of resources available. Another example of an issue was the intention from the upper management to push the responsible departmental manager to start executing immediately and then redo all the work later to get it right, as project's initial specifications were wrong. That was perceived as unrealistic expectations from upper management. Some organizations saw project management pre-eminently as a managerial, execution-oriented activity. The execution activities were seemed like "extra" work that can easily ignored in the face of day-to-day activities. This was perceived as misapprehension of project management capabilities. This was happened because senior managers initially thought, that project management process was a tool which that would allow to have unlimited resources and capabilities. Some times unexpected revisions were applied to the original mission as upper management rethought the original goals for a project and expected the team to adapt accordingly. Consensus here was played a very important role. If this was happened once during the life of the project, it was awkward but manageable. Finally, in some cases discussed, was found the lack of executive support in such situations.

Organisational quality status as an influence factor

The influence of organisational quality factor was perceived that emanates from the functional processes of operational departments that are engaged to support projects implementation. Finally, there was a common criticism that "*poor organisational quality management can stand in the way of a successful project"*. Total Quality Management was referred as a solution for organisational operations improvement engaged to support the implementation of a strategic project.

This factor was discussed from nearly all participants as the level of quality status of the organisational processes,. This would influence the project management context incontestably. In other words they said that there was a positive or a negative affection to the project management context if an organisation has adopted or not a Quality Management System (QMS), or a standard for continues improvement of the organisational operations Some of those mentioned were: ISO, Total Quality Management principles, Balanced Scorecard, CMM and Six Sigma.

Participants explained that if the organisational (functional) operations are not in the required qualitative level, when they requested to be involved supportively in a part of the implementation of a project, they would not be competent to support and align with project requirements.

Operational processes support as an influence factor

Consequently, organisational operational processes were defined as set of linked activities that receive an input and transform it to create an output useful for a project implementation. They were perceived as those management processes such as purchasing, manufacturing, marketing, financial control, technical support, accounting, recruitment etc., which could give support to core "project management context" processes. They could influence directly the "project management context" elements if they do not have the appropriate quality level, clearly defined boundaries, input, and output, activities that not ordered according to their position in time and space and not embedded in an organizational structure as a whole. They must have a cross-functionality by spanning several functions related to a project implementation.

Organisational communication as an influence factor

Initially, participants considered this factor as the traditional top-down, bottom-up two-way information communication. Incontestably, this was a significant functional part of an organizational system. This is the organisational communication between individuals and been refereed in forms such as verbal and nonverbal. Subsequently, it perceived that the structure of the organization determined in part by a network of channels or paths along which information must flow between members or sub-units. Meanwhile, the success of a strategic project implementation was found dependable on individuals and groups who should be able to maintain among themselves effective and continuing relationships. Besides that, they said that such communication network was affecting the projects' tasks directly. However, the affection of this factor against "project management context" was based on various sources of misunderstanding and difficulties in interpersonal communication. Moreover, organisational communication factor mentioned as too complicated because it takes place at different levels simultaneously.

Some paradigms of the situations characterising the influence of this factor are the following:

The communication process established during the implementation of a strategic was not the required and this was an important issue mentioned by almost all participants. Interdepartmental communication problems were the main obstacle during project

implementation. Another issue was the communication of strategic initiatives and direction down to lower layers of staff. Most of participants stated that strategic decisions not communicated in the right way to project team, the customer, and other project stakeholders. Communication breakdowns caused unclear project goals and objectives, an example was that upper management rethought the strategic goals of a project, but not communicated them straightforward. Then they expected from the project team to adapt on those new requirements accordingly. In addition, negative implications found from the not accurate, timely communication. Communication came in many different forms and caused problems to the project team. Other communication problems were lack of or insufficient communication between team members, lack of or insufficient communication with users and no communication between team members.

Information Technology (IT) support as an influence factor

IT Support was referred at length from participants and was perceived as a factor that is involved at almost in all strategic business projects. From one's perspective, IT infrastructure and IT functional support perceived as necessary integral requirement in almost all projects. Furthermore, absence or bad IT support could produce various problems in the implementation of a project. At this point, interviewees stand out also that if there was poor quality of IT support services, or however was not able to implement assigned project tasks, on time on appropriate quality and on estimated budget due to this factor, this would definitely characterised as great impact during implementation of a project.

Some examples of the situations characterising the influence of this factor are the following:

For example, the absence of using new information technology tools regarding project management. It was referred that there was not any project analysis tools so project managers could not predict or perform an objective analysis of the problems faced. There was "*unavailability of information technology tools supporting project management process"*. Those tools were the project, program and portfolio management IT software and required IT infrastructure missed. Another example referred was the IT support during the implementation of a project.

IT support services are indissoluble with today business projects. Most of the strategic projects require the support and the participation of the IT department. If IT-support offers low quality services or it is not capable to participate in projects' implementation requirements, keep periods, cost in line with planned budget, and delivery deadlines, causes a failure.

Project management strategy as an influence factor

Participants referred that the aim of a project management strategy was to develop effective project management practices and capacity, provide real, effective, and efficient solutions for completion of projects on time, within budget. For example, improve project communication and links to risk management too. Consequently, the outcome for project management strategy-objectives should ensure the confidence and ability of proper management and delivery of projects on time, at the right price and at the right quality as well.

However, most of participants referred that there is an obvious gap between project management theory and practice, regarding project management strategy-formulation. Nevertheless, formulation of project management strategy in practice would be helpful for the implementation of strategic projects. Furthermore, they suggested that should be established a practical viewpoint, on project management strategy regarding influence factors and risk management as well. In this case, some of participants suggested that the impact of influence factors could measured quantitatively and proactively, in order to determine the project's progress outcome in advance. The other standpoint was that, any possible or hidden issues or influence factors measured qualitatively, in order to predict the outcome of the progress of a strategic project proactively. However, the latter presumed as time consuming and bureaucratic process. Therefore, project management strategy was obviously perceived an important factor that could influence the "project management context" elements in individual ways.

It was believed that the key for successful implementation of strategic projects is the formulation of the right project strategy. Quality in project management strategy was one of the major issues. It was essential for project managers to think and act strategically. A project manager should develop a project strategy that supports organizational strategic and business goals as well. In common, sense there was the intention of creation of a project strategy in order to develop qualitative project management practices and capacity that would result the completion of projects on time, within budget and provide real, effective, and efficient solutions to resolve efficiently any project problems and issues.

Organisational culture as an influence factor

Most participants' organisations found to be in a culture change phase. However, this change had a great influence on all their organisational processes, producing positive and negative results. At this point, a modification of the organization required, in order to support such organizational change to avoid weak culture with little alignment with organizational values

and strategic objectives. Similarly, failure in organisational change, culture as influence factor could lead to tensions between organizational and individual interests, which resulted ethical and legal problems. Subsequently, this is an indirect influence to "project management context" elements. Nevertheless, positive outcomes referred as changing company's "*ways of working*" giving capability to project team members to take their own initiatives. In the same time, at international organisations environments, the insertion of new technologies, innovative infrastructures and high-level educated project managers, were found with a positive influence on "project management context".

Organisational Politics as an influence factor

This factor was referred also as micro-politics between different organizational divisions and departments in order to boost their individual strategic projects. One of the project managers narrated, "*Many came from upper managers' decisions as additional* (*intercalary) projects*". In other words, the influence of this factor was the different alignment of organizational divisions within strategy direction and projects prioritisation. To illustrate the conflict, those areas were often "*crash on the rocks of endless debate or succumb*" to political decision-making or selection. As described, there was a focus on individual "*self self-interest and silos"* rather than on "*the good*" of the organization. The discussion of organizational politics as a factor, observed invoking negative thoughts, inevitably from most interviewees during the interviews.

Human Factor

All participants perceived human factor as one of the most important factors. Examples of the situations characterising the influence of this factor are the following:

Interpersonal conflicts were found managing difficult people stacked by old types of cultures. Resistance in change was revealed from people, which did not like to change, albeit their adaptation skills were high. Another problem faced, was that many team members left organization during a project implementation.

Similarly, project progress was not measured as appropriate and delivered results were not evaluated as required. Participants referred that sometimes, it was unclear who was responsible for what. In addition, "*wrong people were held accountable for the things"*. Moreover, an additional comment was that strategic initiatives took longer than they should or do not happen at all. Previous issues were perceived affecting the "project management context" and subsequently the implementation of a strategic project. In addition, many other issues and gaps were referred, related to human factor. Such, were human recourses training

and financial issues, which had direct affection to the progress of a project. Human factor found influenced by many other correspondent factors.

One of the impacts of this factor was the fact that human resources found not efficiently deployed, as on the other hand strategic goals were not clear. In general, lack of resources was on of the main critical problems faced during a project. Recourses availability was mentioned as the second major problem related to implementation of projects. This was translated as a shortage of team members in a new project. Most of participants were ranked project team problems as least as one of the highest reasons for project failure. They indicated that project team problems were part of the reasons for failure. They quoted, "*Suddenly a team member announced he or she can't continue on the project"*. Another issue was the problem with lack of users' involvement was especially in (UAT) "User Acceptance Test" phase.

Finally, they referred that project teams was found to do not believe in project tasks ownership, thinking that it would have little or no value to the organization, even that the request had come from the top management. It was referred that "*Failure to deal with a problem employee"* was still the most common complaint that team members have about their leaders.

Some other issues referred, were the unskilled team members, team members were not accountable for actions, team were not physically located together producing communication problems, there was too many reassignments of team members producing resources unavailability and overwork and finally, too much overtime as always having more potential projects in plan than the available capacity of human resources.

Another important issue found was the problem with untrained people even in the simplest operations of project management process. Untrained project's team members leaved to their personal experience to extemporize tackling with problem cases. This also was the same in line with common sense of technology Illiteracy. One way of solution suggested was that project managers identified the "*key people at the start of a project which designed the workflow so that others in the team might be cross-trained to fill these roles"*. Key people were backed up through the work so there would be someone remaining "*who is familiar with the project"* in case of one of those key people was to leave the group or reassigned to another project.

Organisational knowledge management as an influence factor

Most times the estimation for future but the same in direction of projects was based on previous experience. This was a common comment by most participants. Concurrently, by bridging the gap between knowing and doing was found achievable if there could be used any of the best practices from previous projects. However, such a system supporting the knowledge management requirement of the organizations was not found. Nevertheless, there was the intention to keep and use tacit knowledge and experiences from previous projects in various forms and types. One of the forms referred was for the creation of an idealized project management memory. It is obvious the influence performed by this factor on "project management context". The estimation and assessment of a new strategic project requires reference back to lessons learned and previous experience with related projects. This task characterized as very hard but undoubted requirement that should achieved for qualitative assessment and implementation of projects as well.

Organisational project management maturity as an influence factor

Participants considered a little the organizational or technical reality as maturity knowledge. Participants' minds brought all those related information through their experience from previous projects. They suggested that it would be very useful if they could be grounded into organizational project management, bank of maturity knowledge and be stored somehow somewhere in a knowledge keeping system. One participant reflected wistfully: "*There's a lot of project management knowledge that goes to waste*". Project team's experience that could be in write or in virtual mode, is characterizing the level of maturity of this team. Likewise, the same is standing for all of the elements in "project management context" and the maturity acquired for each of those processes. This factor influences the organizational wisdom on strategic projects management and implementation.

Interviewees perceived positively the development of organizational project management maturity. The latter would help to better projects direction and implementation, they said.

Project management maturity in practice was based on experiences and people "tacit knowledge" gain through the years and the implementation of multiple strategic projects. For example maturity was achieved through quality improvement projects in the area of organisational structure, optimisation and by re-engineering projects of production operations. The interpretation of narratives reveals that project management maturity perceived to be hand in hand with schedule and cost performance, project quality and customer satisfaction. In addition, project management maturity was referred as the progressive development of an enterprise-wide project management approach, methodology, strategy, and decision-making process.

The level of maturity, varied for each organization based on specific goals, strategies, resource capabilities, scope, and needs. A mature organisation should have wide ability for managing programmes and projects based on standard, defined programme and project management processes. In this case could tailor those processes to meet the specific organisational needs.

Organisational bureaucracy as an influence factor

Bureaucracy was found related with organisational quality factor. This factor was found to influence the "project management context" in various ways. For example, it was referred that project team members were "*buried in unnecessary paperwork"*. Sometimes extra paperwork added was making corruptions. This almost certainly made the project management processes less efficient, but was supposed to make them more equitable. Similarly, attempts to deal with unethical, inefficient, or other "*bad practices"* countered as productive, actually made things worse rather than better.

One interviewee referred: "*Bureaucracy isn't itself corrupt, but it is ineffective in dealing with corruption"*. Bureaucracy equals inefficiency and incompetence in a project progress according to the opinion of almost all participants. Most of participants equated bureaucracy with any manifestation of administrative incompetence. Such bureaucracy was meticulous, almost obsessive about accurate record keeping. While it was probably true that, any large organization had some elements of bureaucracy.

Finally, three to four organisations were characterised as closed systems having one right way to do things. It was referred: "*A person should finish the necessary procedures regardless of how useful an intended result will be for the organization*". This was a focus on doing things right, rather than doing the right things. It was suggested having accurate and sophisticated criticism of bureaucracy regarding the affection had to the business and project management contexts respectively.

Project Management Flexibility as an influence factor

Operational support was characterized from all interviewees as an important factor during strategic projects implementation. Participants referred that during the implementation of a program of projects raised the need for an internal interdepartmental commitment using an (SLA*) "Service Level Agreement"*. This was asked between the related organisational departments involved to the project by providing their functional support services. At this

point was found that an appropriate flexibility was required using the operational processes in a more efficient way. Some times was self-evident to perform changes to existing functional processes in order to support the project requirements. Project management flexibility has to do with various issues faced during the implementation of project. Such issues and obstacles could appear through other influence factors. Thus, the level of flexibility adopted during progress of a project, finding the appropriate solutions to bypass those obstacles, in order to continue the implementation, is characterised from one perspective a factor prescribing the success of a project.

External environment influences as an influence factor

In common view, this factor was found affecting an organisation in multiple ways. Participants referred that today business climate is characterized by unprecedented changes in technology and globalization, as well as by complex business relationships and the unrelenting drive for competitive success. It was also referred that organisation's external environment map is including a wide variety of needs and influences that could affect a strategic business project. That influences could not controlled directly and many times issues raised were unexpectedly. Some of the influences from external environment mentioned here were the following: political, economical, ecological, societal, and technological in nature. Participants referred that those influences had direct or indirect affection to "project management context" elements.

Ethical factors

Conversation on ethical factors, had to do with organisational Influences (internal and external), from low morale project teams producing an unsuitable working environment. This was referred as an ethical commitment of those engaged with projects as team members and project managers, doing what is right and honorable, negotiate in good faith and respect the property rights of others. Meanwhile, things like showing respect regarding themselves, others, and the resources entrusted to them including people, money, reputation, the safety of others, and natural or environmental resources were discussed as well. Besides that, an environment of respect engenders trust, confidence, and performance excellence by fostering cooperation. In other words, it means an environment where diverse perspectives and views were encouraged and valued. From ethical point of view, those were the messages from participants.

Participants' messages are illustrating the influence of ethical factor on "project management context". Those messages were extracted through narratives, as suggestions of ethical behaviour, were the following:

"Project members should understanding the truth and act in a truthful manner both in communications and conduct. Disclosure potential conflicts of interest to the appropriate stakeholders proactively and fully. Make commitments and promises, implied or explicit, in good faith. Strive to create an environment in which others feel safe to tell the truth. Do not hire or fire, reward or punish, or award or deny contracts based on personal considerations, including but not limited to, favouritism, nepotism, or bribery. During a project, do not discriminate against others based on, but not limited to, gender, race, age, religion, disability, nationality, or sexual orientation. Apply the rules of the organization without favouritism or prejudice. Demonstrate transparency in decision-making process. Constantly re-examine impartiality and objectivity, taking corrective action as appropriate for the good of the project. Do not exercise the power of an expertise or position to influence the decisions or actions of others in order to benefit personally at their expense. Finally do not act in an abusive manner toward others".

Ethical factor found to have ramifications of influence affecting the "project management context" elements at many extents by perverting the relationship between human resources.

Organisational complexity as an influence factor

Interviewees considered organizational complexity as indirect influencing factor in reflection with the internal and external organisational environments. At this point internal environment was perceived as processes and technologies that constitute the core operations of the organisation. As external environment was perceived the customers, markets, suppliers, competitors, and institutions that shaped what the organization must respond. Formerly, project members constantly barraged with demands for their attention, solving existing problems, and scanning for new ones. Similarly, one side of complexity was that organization's technologies delivered as a finished project. This has as an impact in the working environment to become more complex and as they said: *more specialists were required to understand the underlying causal mechanisms"*. This subsequently required greater effort at integration and coordination, again adding to the variety of tasks that the organization must do in order to function effectively. In this case, human resources were engaged into both functional and project team category and most of them tried enacting the beliefs and norms associated with the given role at an appropriate time. Even though, the roles might actually conflict with one another.

Project management process as an influence factor

From narratives analysis was revealed that participants' organisations had low performance in project management disciplines. This was recognised on all projects' phases form initiation to

closure and there was no intention to articulate to get better. On the other hand, there was the recognition for a value associated with being able to manage projects more effectively. The process of initiation of business projects was referred as one of the main problems as project's requirements many times were ambiguous based on improper pre-analysis. In general, business units did not give sufficient details for the projects. Some other problems referred by the participants were "*poor project planning"*; metaphorically, they said "*Jacklegs on implementation, improvisation of project managers"*. This had a critical affection to many projects' delivered quality. Another problem revealed was that sometimes "*could not keep the project within its original parameters"*.

Thereafter, as the team began the work, the project grew in size, as more tasks assigned as part of the mission. "*Rework was the primary problem"*. The previous caused by poor quality work during a project. Once project managers have composed a plan, and tried to review it weekly, if not nightly, against the team's actual performance. With regular and timely assessment, was possible to reflect this constantly changing reality and keep management regularly informed. By analysis of observation's data, was found a common criticism of project management methodology. The methodology was cumbersome, paper intensive, and took too much focus away from the work at hand. Sometimes this was a legitimate concern, caused by not scaling the methodology appropriately to the size of a project.

Other issues regarding project management process referred were the following:
Project had vague requirements. For every step taken, the project took four steps backward. In There was an example that some projects began with nebulous objectives and milestones. In the same way incomplete requirement were adding to projects complexity issues.
Subsequently, a suggestion for the issue of possible dependencies between projects managed flexibly, as resources shifted between projects within the program for the optimum result. Therefore, program managers needed to have an oversight of the status of all projects in the program. Finally, was discovered that during a project implementation, the same results were achieved using different inputs or by using different processes with the same inputs.

Stakeholders as an influence factor

Participants suggested that stakeholders' should manage the expectations in order to maintain portfolio of projects alignment with organisational strategy. Effective stakeholder management found to require the identification of individuals who affect the outcome of a project and could be affected in turn, especially those who are of a less than positive disposition toward the project objectives. In addition, participation of stakeholders, particularly in the design and implementation stages, was found that might have helped to

avoid some of the mistakes made. Finally they referred that in many cases sponsors said that was wasting time identifying projects risks.

Project Earned Value management as an influence factor

According to narratives' analysis, found that there was small use of computation of earned value. This calculation of earned value and its frequently control and management based on a simple metrics of project management process. Earned value management was not perceived as helpful indicator as it should be used for indicating the status of a project. However, was referred that earned value management was used sometimes, during projects' implementation. In addition, this was referred as a useful technique. It was perceived as influence factor as it could affect the decisions of project managers against projects progress.

Project time and cost control as an influence factor

This factor was perceived as three different factors as well. This was the project management triangle. Time and cost are affecting the delivered product quality. Sometimes the cost is affecting the time used in a project. One of the most common problems mentioned by participants was that a project "*could not begin on time*". Project managers were get the assignments but those were added to an already challenging slate of projects. Yet, they were expected to complete the project on schedule. Some times, they were asked to complete sooner than originally agreed the project with lower cost or other pressures by management. This stress resulted from deadlines caused problems to the project team. In some cases, there was the need of identifying, gathering, and leveraging the right mix of metrics is a way to gain better control of large projects. It was referred that projects costs sometimes were over-budget and inching up and there was an issue if the situation allowed continuing. Another subject referred was regarding quality against time and cost in the delivered product of a project. If the product had poor quality, the client did not accept the product. So this was perceived as a failure for the specific project.

Risk management as an influence factor

Here the classical impact of not identifying clearly all the critical risks, without quantification and without using any monitoring tool was found. The whole process was perceived as bureaucratic so there was established the required response at projects risks. Generally, business risks were handled by the business and generic risks were risks affecting all the projects. An example of such a risk was that business users were not available and requirements of a project were incomplete. Other risks referred were that vendors were not meeting deadlines, business users were not available budgets were exceeded and milestones were not achieved. In general terms was observed that there was a starkness to avoid the risks.

For example, they did not use another supplier. Alternatively, mitigation of the risks by taking actions to lessen the impact or chance of the risk occurred. A risk response plan was not found including the strategy and action items such as what was needed, who was doing it, and when it should be completed.

Project Management Office (PMO) as an influence factor

Practically, there was not found any PMO that officially and typically established in any of the participated organisations. Nevertheless, by observation the initial steps of creation of a central PMO only in the large financial organisation was found. The opinion from all participants was positive to the need and to the intension of creation of a capable PMO that would help in better management of portfolios and programs, and individual projects in their organisation as well. In this case, there was a common comment from most of participants that the role and the positive influence of an official PMO would help in a more qualitative project management and implementation of business strategic projects. In addition, it was suggested that the PMO should be in alignment with upper management and with qualitative communication with all required functional operations. The PMO should participate to portfolio management, and formulate the project management strategy. Should help on organisation tacit knowledge management and memory and maintain the project management processes quality.

A deeper analysis and consideration of unobserved «project management context» situations

There is a need for a special consideration should give to unobserved situations highlighted through discussions during the investigation of practices regarding influence factors. It is reasonable to believe that the findings about the "unobserved" situations might be true. The aim is to reveal any unobserved situations related to the research subject identified during the interviews (Leplin 1984), (Kuhn 1970).

A realist view of organisational life sees it as including social structures as well as social events, in critical realist terms, the ‘real’ (which defines and delimits what is possible) as well as the ‘actual’ (what actually happens). Social fields, institutions, and organizations regarded as networks of social practices.

Networks of social practices include specifically discourse selections and orderings (from languages and other semiotic systems, which counted amongst social structures) referred as ‘orders of discourse’, appropriating but redefining Foucault’s term (Foucault 1984,

Fairclough et al 1997). Orders of discourse are social structuring of linguistic/semiotic variation or difference.

This means in table 4.1 those realities are displayed and a political and project management orders of discourse probably are revealed. However, there are some others, which are non-discourse elements perceived as abnormalities in the «project management context» processes and so, influencing it. It is not in the scope of this research, to discuss and analyse possible discourses revealed by such analysis, but to take their influences as examples and facts for the justification of respective factors.

The following table 4.1 illustrates the diversification of reality of facts in the set of influence factors, according to the discussions performed with participants during the interviews. The facts were revealed from the analysis of observation as well.

Influence factors set	**The diversification of reality revealed during the discussion with participants**
Organisational strategy and operating plans	Organisational politics are influencing the decisions of upper management. Plans are many times in the sphere of imagination as there was no information about organisational capabilities to run such a strategic project
Portfolio and Program Management and Projects Prioritisation	There was a substandard of portfolio and program management process. Prioritisation failures and deficiency of procedures were found.
Upper management consensus and influences	Consensus was influenced by organisational politics. Many times, there was a detachment from project scope and inadequate support.
Organisational culture	Organisational culture had permanent negative influence to all projects. Such culture shaped from people, as they were for more that 30 years in the same company with great resistance to changes and improvements through new technologies or re-engineering.
Organisational Politics	Those were internal and external. There were personal benefits and profits and egocentric intensions for authorities as the main drivers.
Organisational knowledge management	The knowledge management process was inexistent or indefinable if not at all the. Reports represented the 30% percent of status and the tacit knowledge and experiences did not recorded in the organisational memory.

Human Factor	This was the most important, unpredictable and rigorous factor. Theories on human resources management had a small percentage of application and in particular situations.
Organisational Quality	Unstructured and unplanned activities were found. Resistance and fear to any implied change from people (in reflection with organisational established culture) and slow implementations of improvements. Ad hoc fixes and imaginary (if not unreal) temperament of continues improvement.
Organisational bureaucracy	An obstacle for related to projects approvals was found. Some processes still had messy unspecified flow due to many bureaucratic steps.
Operational processes support	There was not qualitative coordination due to human resources gaps, inexistence of service level agreements between departments, oral agreements, conditional settlements, and adjustments.
External environment influences	Legal and cultural influences were found. There were competitive influences from other organisations with impact on senior experienced project managers recruitment.
Ethical factors	There was a conditional appliance of ethics
Organisational complexity	Complexity was found related and in reflection to slow improvement of organisational quality. Systems integration and centralization were in continuous progress without significant results.
Organisational communication	This was one of the most critical and important influence factors. Communication and negotiation problems were found. IT tools were suggested as solution for a qualitative communication between people but were not the panacea for solving miscommunications and misunderstandings.
Project management process	Variations of project management processes used. Extemporaneity used from project managers and teams. Partially use of procedures and documentation. Conditionally discipline to commitments.
Information Technology	Variations of technology infrastructures were found. Organisations were following the fashion of new technologies and tools but with small percentage of utilization. Underutilization of project management software was found.
Stakeholders	Stakeholders were found to be conditionally aware of situations as discourse was revealed in lower levels of project management processes.

Project Earned Value management	Very rare and partially use of Project Earned Value management. Unfamiliarity and ignorance of its benefits was found.
Project Management Flexibility	There was an improvisation by project managers. This was an indispensable function for project management success under such circumstances.
Project time and cost control	Time and cost were found as conditionally variables of strategic projects control. The most important issue was the quality of the delivered results. Obviously if cost or time exceeded sometimes, projects were perceived as failed. In addition, another category of those projects that never ended was found.
Risk management	Risk management as a process found unorganized and partially used. There was a rare progression of risk management philosophy and use of procedures. It was improvisational risk management according to experience and tacit knowledge. Many times this method was successful.
Project Management Office (PMO)	There was no PMO found with the official structure. PMOs across different organisational departments for the local projects' requirements were found improvisational. No centralisation or integration of PMO functions was found.
Project management strategy	According to participants narratives, rare but several versions of project strategy struggles were found across all organisations. Variant aspects influenced project management strategy-formulation.
Organisational maturity on project management	Organisational maturity was found unmanageable and metrics were unspecified regarding project management maturity level. There were infantile and immature conditions and picture of situation.

Table 4.1 Influence factors and the diversification of reality, during the discussion with participants

Here, must note that the overriding objective of analysis, on this view, is not simply analysis of discourses revealed per se. It is a presentation of the dialectical relations between discourse and non-discourse elements of the «project management context", in order to reach a better understanding of these complex relations (including the possibility of how changes in discourse can cause changes in other elements).

Reflexive critique – internal thoughts

An advantage of one-on-one interviews was that they provided flexibility as the interview provided the opportunity to probe the reasons behind the opinions, search for biases in the positions, and follow up on unexpected hints dropped by the interviewees. The analysis of findings was based on what meant by influencing factors applied on the “project management context” and its links. This followed by identification and description of each of the categories found. Each category was describing a range of codes included in it. Codes in turn were used for the identification of influence factors. Each of those factors were explained with examples and quotations from participants’ narratives. The role of such investigation was to reveal the way a factor affects the “project management context”. Finally, a set of influence factors listed and unobserved situations and issues referred. Those identified as elements of possible discourse and others were perceived as non-discourse issues.

In the following chapter, will be the presentation of conclusions in way that is more extensive. There will be a discussion of findings of the qualitative analysis and presentation of the most important factors revealed by quasi statistics analysis.

5. Discussion and conclusions

Conclusions in this chapter are interpretation of findings linked to practice and helping to understand theories developed regarding “project management context”. The findings were discussed and were synthesized, in order to make sense and provide a coherent view to the subject under research. In addition, there was a reflection back to existing literature and theoretical knowledge findings. Conclusions based on results developed in the analysis chapter are congruent with literature review findings. Finally, conclusions contributed to development of new approach based on theory and practice, giving opportunities for further research. Table 7.1 in appendix 7 illustrates the influencing factors codes, for better presentation of assessment results.

Theoretical hypotheses and qualitative research findings

The hypothesis developed in previous document was:

The elements of «project management context» are linked as processes and are perceived as logical flow steps, for the implementation of a strategic project, starting from business strategy down to project management. In addition, the existence of a range of influence factors is recognised, as they are affecting those elements and their linkages as well. In other words, influence factors are affecting the integration and cooperation of business strategy and project management, in various ways, producing fragmentation or/and disconnection issues between them.

Literature review identified a basic conceptual framework containing the elements of “project management context” and a theoretical list of influence factors. The latter practically was for evaluation and test by this qualitative research.

The results of variation method of Delphi technique

Finally, by using a variation method of Delphi technique, a small panel of five experts on project management, assessed those factors in a second round and validated their level of their influence. The method used is described in methodology chapter in the section “The process of influence factors assessment by a panel of participants”, and the results are presented in table 7.2 in appendix 7. The factors were assessed twice by the panel. Firstly, was the assessment of their influence level against “project management context” elements and secondly between them. The two results were correlated and a final list of six important factors emanated. Then, the six factors were reviewed and assessed again with narrative analysis and literature review findings respectively. The result was the list of six most

important factors, illustrated in table 5.4, based on radical assessment of findings from those three research sources.

The calculation of the cross web diagram was performed using quasi statistics on rating results of the panel. In a more detailed analysis, figure 5.1 illustrates graphically the level of influence factors affection on “project management context” elements’ processes. The cross web diagram was based on table 7.2 (appendix 7). The graph was produced by using the MS Excel of the total average scores in the matrix. The factors with the highest level of influence, are observed at the last two external rating circles of the cross web diagram (between 14-18 degrees). First, found having highest rating levels are project management maturity and project management strategy. Communication human factor, organisational knowledge management, and IT support are coming next. Then PMO (Project Management Office) is coming afterwards, at that characterised by the panel, as a key influence factor. Finally, all the others are illustrated in the lowest circles and levels in the graph.

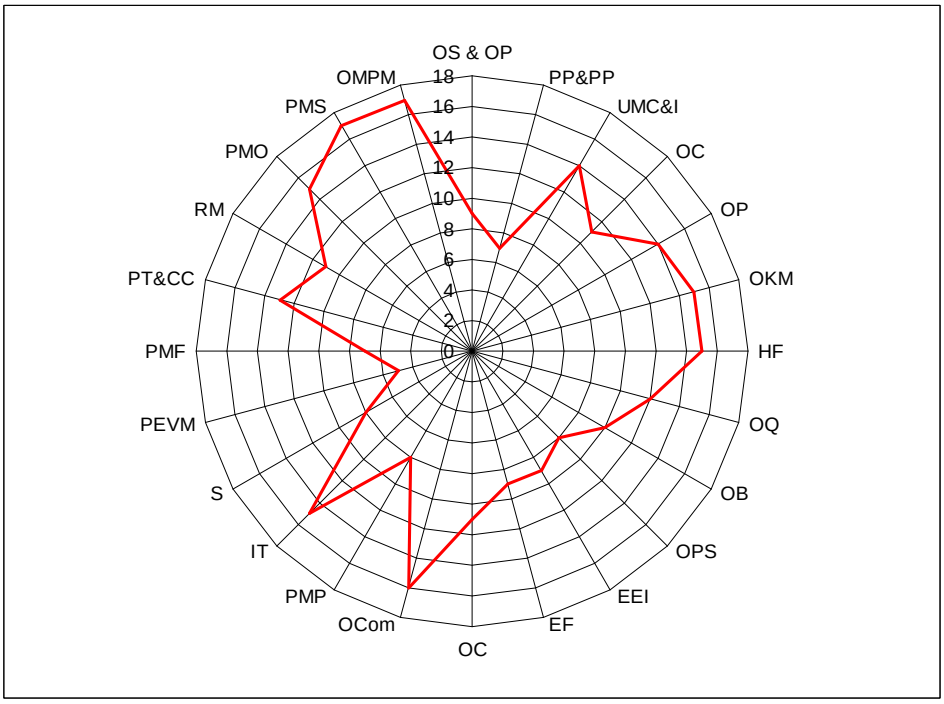


Figure 5.1 Cross web diagram showing the level of influence factors affection on “project management context” elements

Influence and reflection between factors

The next assessment was to ask the panel to assess the between factors influence. All factors were perceived having interrelationships and cross influences of each other on one way or another. In other words, the panel was asked to think and assess in what level each of the factors affects the other ones. In order to reveal the interrelation and influence between those factors a comparative approach was asked to be performed between the factors to assess their cross influences.

It was used a cross influence assessment matrix, designed in such way in order to use the horizontal factors list and rate each of the factors in vertical list.

The panel rated the degree of influence impressed from the factors of the vertical list on each of the factors in horizontal list. Each of the participants rated the level of cross-influence between factors in a different matrix. All sores were averaged and totals were summarized horizontally and vertically. For each factor in vertical list, the total in the right of the matrix represents the rating level of influence impressed against the factors in the horizontal list, named as «Total affecting to…. ». For each factor in horizontal list, the total in the bottom of the matrix represents the rating level of influence accepted and sustained from the factors of the vertical list, named as «Total affected by…. ». Table 7.5, in appendix 7, shows the rating level of influence for each of the factors and their total rates at the in the right end bottom column of the matrix.

In a more detailed analysis, figure 5.2 illustrates graphically the level of affection by the influence factors. This graph based on totals in table 7.5 in appendix 7, was produced by using the MS Excel for both series of total average scores in the matrix. The factors with the highest level of influence, observed clearly because of their great peaks on the rating circles in the cross web diagram. The first, having the highest rating level is human factor. Then, follow organisational quality, IT support, and bureaucracy. Upper management, organisational communication, complexity, and knowledge management are coming afterwards.

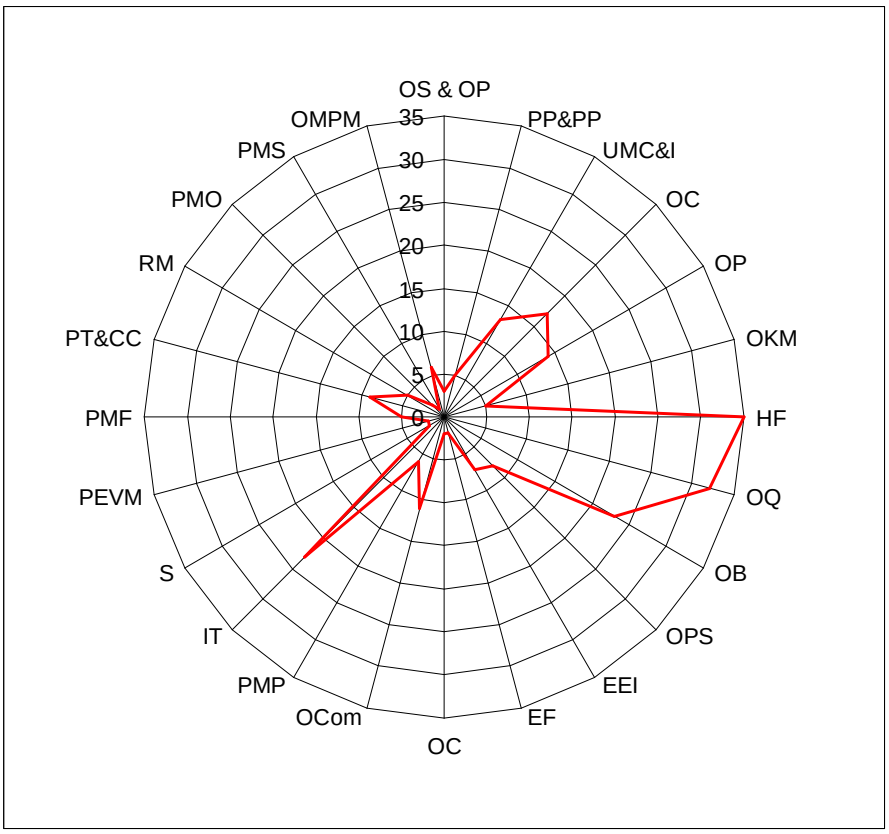


Figure 5.2 Cross web diagram showing the influencing level between factors

The between factors influence means their interrelation, contradiction and affection. This has the logic that each factor is interrelated with parameters, which influenced from the other factors. In turn, a factor is influencing the parameters of the other factors. Some times, there are cross-influenced interrelationships between factors. For example, human factor influences organisational politics directions but in turn, is influenced by the results of those politics. Another cross-influence case is while organisational culture is influencing through human factor the organisational quality factor (e.g. resistance of people to accept organisational changes during a quality improvement).

In the light of these conclusions, the following analysis is concerned with between factors affection having as specific boundaries of influences the "project management context" elements. The target is to identify their between them dependencies and influences in reflection to interpretation analysis findings. It is Obvious that there might be many other factors originated from internal and external environments.

Conclusions of the most important factors

Following the assessment of the panel based on variation method of Delphi technique, in reflection to analysis of findings based on interviewees' narratives, the main conclusion that

can be drawn is therefore the most important factors are displayed in the following table 5.4. The initial calculation is performed based on the logic of calculating the grant totals of both vertical and horizontal score ranks in table 7.5. This means that the level of importance of each factor is calculated according to the totals of both influence and be influenced scores.

The final assessment of most important factors, revealed by quasi statistics scores, is performed by using a radical approach on findings emanated through narrative analysis. Each of the factors are assessed by contrasting it qualitatively with the respective weight, participants gave to this factor during their discussions. In addition, the codes are used to identify how much each of the factors appeared during conversations with participants. It is notable to refer here that the practical experience of the researcher helped in this assessment.

Human factor
Organisational communication
Organisational quality
Information technology support
Project management strategy
Organisational project management maturity

Table 5.4 The list of the most important factors

Human factor and organisational communication were characterised by almost all interviewees the first most important factors. Organisational quality and information technology support were referred as indispensable for the “project management context” as well. Project management strategy and organisational project management maturity were characterised by their centralization of experience from other factors influences. Organisational bureaucracy even found to have high rating score in the assessment matrix, when assessed with findings from narrative analysis was found interwoven with organisational quality, so was removed from the list.

In the following paragraphs the between factors influence interrelationship based on the assessment scores of table 7.5 in appendix 7 is presented. In some cases, there are comments of examples in practice. The presentation starts with the most important factors and continuous with the rest of them.

Human Factor influence

This factor is characterised as the basic and most important influences and influenced by almost all other factors. It was found having a high level of affection on "project management context".

Organisational quality influence

Organisational quality was assessed as a factor influences and is influenced by the Information technology support factor. In turn, it influences the factors of human, organisational communication, and project management strategy.

Information Technology influence

This factor was found influencing the projects management strategy and human factor while was influenced by the organisational quality factor.

Organisational communication influence

Organisational communication factor was found influencing the human factor and the project management strategy. Communication was perceived as one of the most important factors. Organisational culture, organisational bureaucracy, organisational quality, and information technology support were found influence it.

Project management strategy influence

Project management strategy was found influenced by almost all factors. The most important influence was found coming from project management process. In turn, the formulation of project management strategy possibly affects the other factors.

Organisational project management maturity influence

Organisational project management maturity was found influenced by almost all factors. It was found influencing the project management office and project management strategy.

External environment influence

External environment factor was found influencing the upper management consensus, organisational strategy and operating plans and organisational culture. In turn, it was influenced in lower level by organisational strategy and operating plans and organisational culture.

Upper management influence

External environment issues were found influencing the upper management behaviour. In turn, upper management was found related to ethical issues, influences the organisational strategy, portfolio and any program of projects, organisational politics and human factor as well.

Organisational politics influence

Organisational politics factor was found influencing the organisational strategy and operating plans, portfolio and program management and projects prioritisation, upper management consensus, human factor, stakeholders, project management strategy and organisational maturity on project management. In turn, it was influenced by upper management consensus, organisational culture, and human Factor.

Personal and organisational issues was found influencing the employees' perceptions of organizational politics. Organisational politics described as means of recognizing and, ultimately, reconciling competing interests within the organization and subsequently with strategic projects. In this case, any number of means can reconcile competing interests. Politics were perceived as mechanisms whereby they reconcile organisational and projects conflicting interests as well. Consequently, organisational decision-making and problem-solving of upper management, while seemingly a rational process, also were perceived as a political process.

Organisational culture influence

Organisational culture was found influencing the organisational politics, human factor, organisational quality, organisational bureaucracy, external environment some times, ethical factors, organisational communication, project management strategy, and organisational project management maturity. It was influenced by human factor, organisational quality external environment factors.

Organisational knowledge management influence

Organisational knowledge management was found influencing the project management process while human factor, organisational bureaucracy, and information technology influenced it.

Organisational quality influence

Generally, quality was found to be influenced by organisational culture, human factor, upper management the organisational cost and the support from information technology as well.

In turn, was found influencing organisational communication, human factor, organisational bureaucracy, operational processes support, organisational complexity, organisational communication, project management process, information technology, project management flexibility, project time and cost control, risk management, project management office (PMO), project management strategy, and organisational maturity factors. Organisational quality was found in line with bureaucracy issues. External environment issues and operational processes were in some level responsible for organisational complexity.

Project earned value management influence

Project earned value management was influenced by project management flexibility, project time cost control and risk management factors. It was found influencing project management strategy, organisational maturity on project management.

PMO influence

Project Management Office (PMO) found influenced by the following factors: information technology support, organisational quality, upper management, operational processes support, human factor and finally organisational maturity on project management as well. In turn, it was influencing project management strategy and organisational maturity on project management.

Project management strategy influence

Project management strategy found influenced by almost all factors and especially by Project management process. Project management strategy in turn was found influencing the organisational maturity on project management.

In previous presentation, based on the assessment scores of table 7.5 in appendix 7, struggled to show how factors influencing and were influenced between them. This relationship is not perceived as standard or permanent and might is depended on various parameters and organisational situations, contribute in a point of time. The practice here was to understand how influence factors can be assessed using a variation of Delphi technique by a group of experts in project management and extract inferences for the status for a set of influence factors.

Revision of conceptual framework

Qualitative approach, helped to determine a list of the most the important factors and assess the between them relationship. Those reflected with literature review findings as well. The amendment of the conceptual framework contains the logic of between factors influences. Figure 5.3 is illustrating the project management context and their links discovered and

designed from the qualitative data analysis. Influence factors affect all the conceptual framework elements. The information of lessons learned is helping to anticipate factors' negative behaviour respectively.

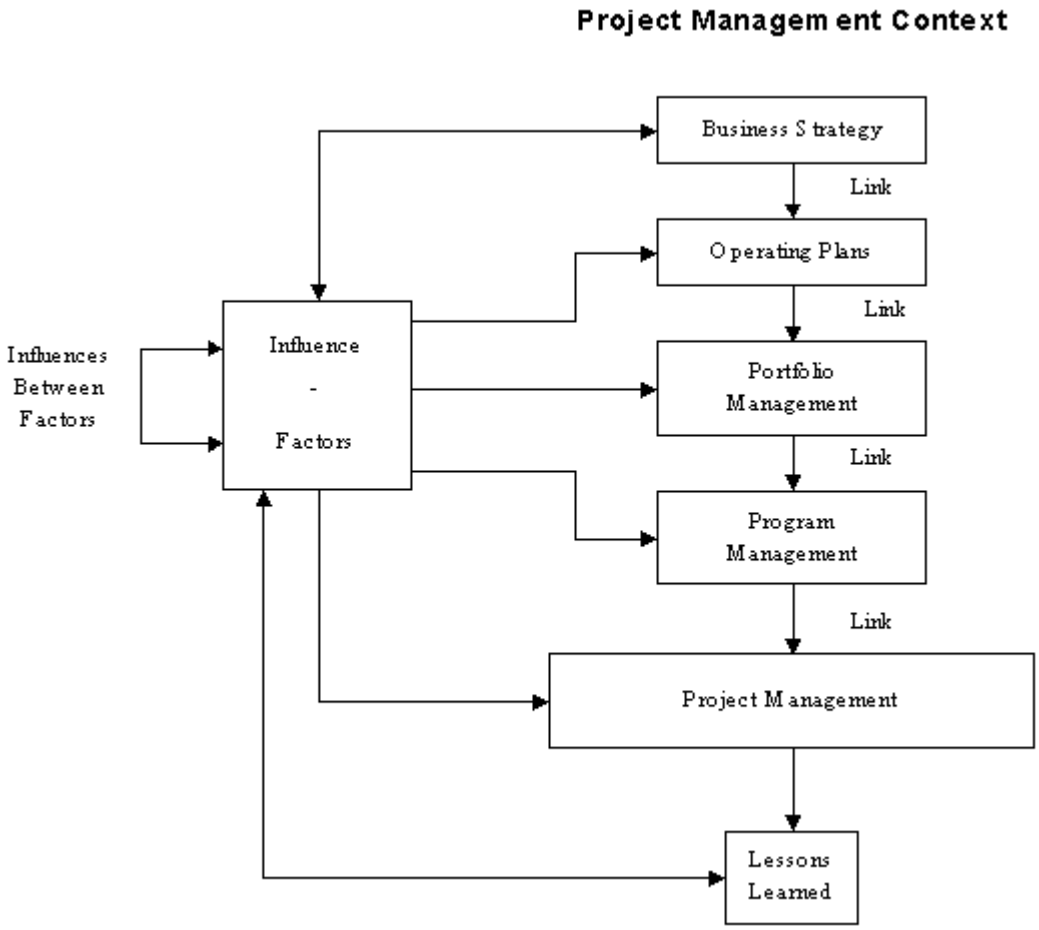


Figure 5.3 Revision of conceptual framework

Revision of Strategy Implementation Model (SIM)

Strategy Implementation Model (SIM), illustrated in figure 5.3, is based on the conceptual framework and according to literature review of document 2. In this approach, it is amended according to influences between the factors based on the perspective of continuous feedback of influence status to the PMO. Influence factors affect all the elements of the model. PMO helps to the formulation of project management strategy. In turn controls the portfolio, program, and program management processes. The information of the influence level from the factors is transmitted to PMO respectively. PMO helps to the formulation of the required project management strategy. This is performed in order to control the model's elements as appropriate, to anticipate, and interfere proactively on factors affection.

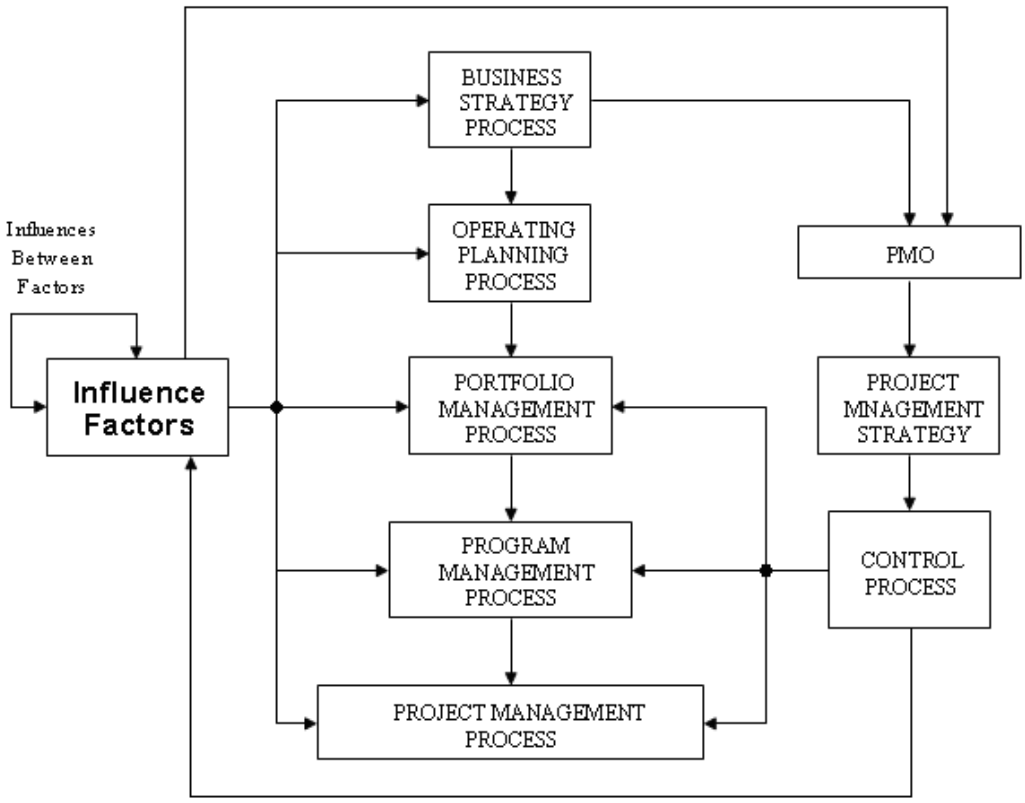


Figure 5.3 Revision of Strategy Implementation Model (SIM)

Project management strategy approaches

On the other hand, there are two approaches for on project management strategy formulation. First approach is that everything is fully deterministic in practice, *"Approach D"*, since this has to do with influence factors in practice, and it is practical to measure the level of affection of influence factors (as variables), that determine their outcome such that we could predict that project outcome in advance. Based on those metrics it is possible to formulate the appropriate project management strategy and controls.

The other approach is that strategic project management would be fully probabilistic in practice *"Approach P"*, and there are no hidden influence issues to use to predict with certainty the outcome of the implementation of a strategic project.

"*Approach P"* also implies that the time and effort required measuring all of the factors as variables influencing a strategic project, and be precisely enough to predict the outcome with certainty and in advance, might exceed time and cost limits (time, cost consuming and bureaucratic). *Approach P* does not mean that project management cannot manage in such a way that the desired outcome is nearly certain.

If project management theory is failed, to be probabilistic, it is only because it has not discovered those hidden influence variables that fully determine the outcome based on lessons learned of project management in practice.

Understanding whether we should follow the *Approach D* (which is fully deterministic) or the *Approach P* (probabilistic), helps to set the expectation for the relationship between what planned and what is transpires.

If *Approach D* chosen is possible to plan the project management in advance, believing in *Approach D* believed that ought to have a quantitative estimation of factors influence level carried out to perfection.

If *Approach P* is chosen, it is also possible and practical to estimate and plan factors' influence anticipation with actions proactively. Therefore, when things do not go as planned, a first reaction is to embrace the new information and update the expectations. By using *Approach P*, believed that ought to have a process for continually improving and updating the project management strategy and control process that asymptotically approaches a description of reality.

The belief, about which approach used each time, drives the way to manage strategically the projects in almost every way.

Objectives for successful Project management strategy

The key objectives for successful project management strategy extracted from analysis of the participant's suggestions were the following:

Ensure that project management techniques are applied to all major initiatives, to agree a corporate framework for project management, and to secure appropriate training for all relevant staff. Ensure that the organisation's key strategic programs are managed effectively to deliver their objectives, performance targets, and the capacity for project and program management continues to evolve. Use a flexible and qualitative project management methodology. Ensure that the upper management control and governance framework aligned with "project management context" elements and their individual processes. Improve project communication and links to risk management. Execution of a program as a series of distinct

projects, where the project manager has the right charter and support would dramatically improve chances of success of strategic projects. Consequently, ensure stakeholder confidence in the organisation's ability to manage properly its business by delivering its projects on time, at the right cost and at the right quality. Finally, produce trained and qualified employees through the delivery of a training and development program on the use and awareness of the organisation's project and program management methodology.

Portfolio and program management are considered as very important processes within business context and project management strategy formulation, because they represent «*much work*, and *much of the budget*» of the organisation. The ability to deliver projects consistently will increasingly become a measure of effectiveness. Not only that, but the ability to publish project-related information while projects are in progress was a major factor in enjoying continued support for work in progress from team members and upper management.

Based on hermeneutical analysis the result form participants' opinion also was that there is one thing more important than doing projects right and that of doing the right projects. In many cases, the reason for business projects cancelled was that they never have started. This meant that there was no auditable mapping between the project objectives and the business objectives of the organization. A holistic approach of managing projects, and programs, from their earliest stages to their last aim was a suggestion from most of participants. Such project management strategy responds to these challenges and integrates the findings and recommendations of the assessment of project management within the organisation.

The program and project approaches should be communicated to program and project team members and stakeholders, and activities carried out in accordance with the plans and the defined processes. The organisation should ensure that the defined processes updated when necessary, and improvements are developed and implemented in accordance with a sound business case and development plan. Roles and responsibilities for carrying out all program and project-related activities should be defined and be clear throughout the organisation.

Limitations and future research

There should be a diversification between influencing factors at different organisational sectors and cultures. Future research on organisational strategy and project management might require deeper investigation on each of the factors in order to reveal their dependencies and influences.

Next step: Quantitative research

It is valuable to refer Crawford (2006), and her in-depth study of the discourse of organisational project management capability development. Her research was in one company over a four-year period. She provided a very useful insight into the reality of practice, and the extent to which it reflects, or could influence, espoused theories as embodied in project management literature, standards, and guides. Based on this study, regarding project management in practice, stated the following important conclusions:

The reality of organisational project management capability development was more concerned with capability and results than with the concept of maturity. Reference to ethics and rules of conduct was absent from the discourse of practice. There was no evidence of any coherent plan for improvement. Instead, there were a number of initiatives undertaken, in a relatively ad-hoc manner, responding to increasing pressure from senior management to deliver desired benefits. The path for improvement appeared opportunistic and highly subject to changes in organisational structure and priorities. The underlying proposition was that discourses were constructive and constantly shaping, and being shaped by their context and other discourses. The influence of other discourses was evident in the impact of demand for higher standards of corporate governance and in the effect of restructuring and business change, also referred to as "transformation," reflecting a key preoccupation of the organisational development field.

Practically found that there are two perspectives regarding project management theory and its usefulness in practice. Based on a common participants' view, the first is that most of times theory is of little use because of the existing gap between theory and practice. The second is that new theory produced can be narrower to practice so could be the driver for project management process. This is under investigation by this and future research.

The next step will be the development of quantitative research method using survey questionnaires, based on qualitative research results. Quantitative research construction in document four will help to investigate deeper the "project management context" the links and the influence factors. Finally, the cross checks of results (qualitative and quantitative) might give a more accurate and valid view of the research subject giving some answers to the latter dilemma regarding project management theory and practice.

References

Ballstaedt, S.-P., Mandl, H., Schnotz, W. & Tergan, S.-O, (1981), Texte verstehen, Texte gestalten. München, Urban & Schwarzenberg.

Bhaskar, R. 1978, Realist Theory of Science, Wheatsheaf, Harvester.

Boland, R., (1985), Phenomenology: A Preferred Approach to Research in Information Systems, NorthHolland, Amsterdam

Boland, R.J. Jr., (1991), Information System Use as a Hermeneutic Process," in Information Systems Research: Contemporary Approaches and Emergent Traditions, NorthHolland, Amsterdam

Bruce, C. D., (2007), Questions arising about emergence, data collection, and its interaction with analysis in a grounded theory study, Journal of Qualitative Methods, 6(1), Article 4.

Chia R., (1995), From modern to postmodern organizational analysis, Organization Studies.

Chua, W.F, (1986), Radical Developments in Accounting Thought, The Accounting Review (61), 1986, pp. 601-632.

Creswell, J, (1998), Qualitative inquiry and research design: Choosing among five traditions. , Thousand Oaks, CA: Sage.

Creswell, J. , (2005), Educational research: Planning, conducting, and evaluating qualitative research, Upper Saddle River, NJ: Merrill Prentice Hall Pearson Education.

Derrida, Jacques, (1981), Positions, Trans. Alan Bass. Chicago: U of Chicago P, ISBN 978-0-226-14331-6.

Derrida, Jacques., (1976), Of Grammatology, Tr. by Gayatri Chakravorty Spivak. Baltimore: John Hopkins University Press.

Ellis Carolyn, (2004), The Ethnographic I: A Methodological Novel About Autoethnography, Rowman Altamira, ISBN 0759100519.

Elman Colin, (2006), Explanatory Typologies in Qualitative Analysis, Arizona State University.

Erickson Frederick, (1992), Event Analysis/Microanalysis: Ethnographic microanalysis of interaction, San Diego: Academic Press.

Fairclough N, Jessop B & Sayer A, (2004), Critical realism and semiosis, Joseph & J M.

Fairclough Norman, (2002), Critical discourse analysis and change in management discourse and ideology: a transdisciplinary approach to strategic critique, Lancaster University.

Fairclough, N., & Wodak, R. 1997. Critical Discourse Analysis. In T.van
Dijk (Ed.), Discourse as Social Interaction: Discourse Studies Volume 2. London: Sage

Foucault M 1984 The order of discourse, in M Shapiro ed. Language and Politics Blackwell

Fisher, Colin, (2004), Researching and Writing a Dissertation for Business Students. , FT. Prentice Hall.

Freeman Melissa, de Marrais Kathleen, Preissle Judith, Roulston Kathryn, and St. Pierre Elizabeth A. , (2007), Standards of Evidence in Qualitative Research: An Incitement to Discourse, Educational Researcher, Vol. 36, No. 1, pp. 25–32 DOI: 10.3102/0013189X06298009.

Gee James P., (1992), Discourse analysis, San Diego: Academic Press.

Gilbert Stephen, Brown Dobrin, Sidney I. , (2004), Ethnography Unbound: From Theory Shock to Critical Praxis, State University of New York Press.

Grant D, Harvey C, Oswick C & Putnam (2004,)The SAGE Handbook of Organizational Discourse, Sage.

Glaser, B. G. Strauss A. L., (1967), The discovery of Grounded Theory : Strategy for qualitative research, Ladine, New York.

Godfrey, P.C. and Hill, C.W. (1995), "The problem of unobservables in strategic

management research", Strategic Management Journal, 16, 519-533.

Guba, E. G. and Lincoln, Y. S. (1994), "Competing paradigms in qualitative research",

in Denzin, N.K. and Lincoln, Y. S. 1994, Handbook of Qualitative Research, Sage

Publications, Thousand Oaks, 105- 117.

Hancock Beverley, (2002), An Introduction to Qualitative Research, Division of General Practice, the Trent Focus Group, University of Nottingham.
Ian Maclachlan, (2004), Jacques Derrida: Critical Thought, Ashgate Publishing Company ISBN : 07546-0806-9.

Juzwik Mary M. , (2006), Situating Narrative-Minded Research: A Commentary on Anna Sfard and Anna Prusak's "Telling Identities", Educational Researcher, Vol. 35, No. 9, pp. 13–21.

Kaplan, B. and Maxwell, J.A., (1994), Qualitative Research Methods for Evaluating Computer Information Systems, in Evaluating Health Care Information Systems: Methods and Applications, Sage, Thousand Oaks, CA.

Katz Jack , (1983), Analytic Induction: A theory of qualitative methodology. In R. M. Emerson (Ed.), Contemporary field research, Prospect Heights, Ill.: Waveland.

Knoblauch Hubert, Flick Uwe, Maeder Christoph , (2005), Qualitative Methods in Europe: The Variety of Social Research, FQS, Volume 6, No. 3, Art. 34 – September 2005.

Krippendorf, K., (1980), Content analysis: An introduction to its methodology, Beverly Hills: Sage.

LeCompte Margaret Diane, Preissle Judith, Tesch Renata , (1993), Ethnography and Qualitative Design in Educational Research, Second Edition , Academic Press.

Iedema R, Degeling P, Braithwaite J and White L (2004), 'It's an interesting
conversation I'm hearing': the doctor as manager Organization Studies.

Lee, A.S., Baskerville, R.L., Davies, L, (1992), A Workshop on Two Techniques for Qualitative Data Analysis: Action Research and Ethnography, Proceedings of the Thirteenth International Conference on Information Systems.

Lofland John, Lofland Lyn H. , (1995), Typological Systems Analyzing social settings, 3rd ed., Belmont, Cal.: Wadsworth.

Lofland, John, and Lyn Lofland, (1995), Analyzing social settings: A guide to qualitative observation and analysis. 3rd ed, Belmont, CA: Wadsworth.

Madison D. Soyini, (2005), Critical Ethnography: Method, Ethics, and Performance, SAGE, ISBN 0761929169.

Manen Max Van, (1990), Hermeneutical Analysis: Researching lived experience, New York: State University of New York Press.

Manning Peter K., (1987), Semiotics and fieldwork., Newbury Park, Cal.: Sage.

Martin, P.Y., Turner B.A., (1986), Grounded Theory and Organizational Research, The Journal of Applied Behavioral Science.

Mayring Philipp, (2000), Qualitative Content Analysis, FQS: Volume 1, No. 2 – June 2000.
Michigan State University, (1994), Delphi Technique, Michigan State University Extension Issue Identification Information - III00006.

Miles, M. B., & Huberman, A. M., (1994), Qualitative data analysis, 2nd ed. , Newbury Park, Cal.: Sage.

Moustakas, C., (1994), Phenomenological research methods., Newbury Park, Cal.: Sage.

PetersThomas J., Waterman Robert H.,(1982), In Search of Excellence: Lessons from Americas Best Run Companies , Warner Books, NY.

Polit DH, Beck CT, (2004), Nursing Research: Principles and Methods. 7th ed., Philadelphia, Pa: Lippincott, Williams & Wilkins.

Popper, Karl (1966) Objective Knowledge. A Realist View of Logic, Physics, and History. Clarendon Press.

Reisman Catherine K., (1993), Narrative analysis., Newbury Park, Cal.: Sage.

Saunders, Mark, Lewis Philip, Thornhill Adrian, (1998), Research Methods for Business Students, Pearson Education Limited. ISBN: 0-273-63977-3.

Smith Nick , (1981), Metaphorical Analysis: Metaphors for evaluation., Newbury Park, Cal.: Sage.

Spradley James P., (1980), Domain Analysis: Participant observation., Fort Worth: Harcourt.

Spradley James P., (1980), Taxonomic Analysis: Participant observation. , Fort Worth: Harcourt Brace.

Strauss Anselm L. , (1987), Constant Comparison: Qualitative analysis for social scientists, New York: Cambridge University Press.

Strauss, A., Corbin, J.: Basics of Qualitative Research: Grounded Theory Procedures
and Techniques. Sage Publications, Inc. (1990)

Strauss Anselm L., Corbin Juliet, (1998), Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory, Sage, ISBN 0803959400.

Taylor, C., (1976), Hermeneutics and Politics," in Critical Sociology, Penguin Books Ltd, Harmondsworth.

Truex Duane , (1996), Text-based Analysis: a brief introduction, Georgia State University.

Tsoukas, H. (1989), “The validity of idiographic research explanations”, Academy of

Management Review, 14, 4, 551- 561.

Turoff Murray, Linstone Harold A., (2002), The Delphi Method Techniques and Applications, Portland State University, New Jersey Institute of Technology, with a Foreword by Olaf Helmer, University of Southern California.

Walsham, G., (1993), Interpreting Information Systems in Organizations, Wiley, Chichester
Waterman Jr., Robert H., Peters, Thomas J., and Julien R. Phillips., (1980), STRUCTURE IS NOT ORGANIZATION, Business Horizons 23, no. 3: 14. Business Source Complete, EBSCOhost.

Watson, T.J., (1994), In Search of Management: Culture, Chaos and Control in Managerial Work, London, Routledge.

Weber R. P., (1990), Basic content analysis. , Newbury Park, Cal.: Sage.

Wengraf Tom, (2001), Qualitative Research Interviewing, SAGE, ISBN 0803975015.

Willis, P., & Trondman, M, (2000), Manifesto for ethnography, Ethnography.

Wilson, Thomas P. , (1970), Conceptions of Interaction and Forms of Sociological Explanation., American Journal of Sociology, 35(4), 697-710.

Winget Megan, (2005), Qualitative Research: The "Ethnography of Annotation" Model, Article on qualitative research, The University of North Carolina.

Wollin, A. S. (1995), A hierarchy-based punctuated-equilibrium model of the processes
of emergence and change of new rural industries, PhD thesis, Graduate School of
Management, Griffith University, Brisbane.

Appendices

Appendix 1. Open ended Interview question.

#	Theoretical Questions (TQ)	Open-Ended Interview Questions (OE-IQ)
	A. Strategic Questions	
1	What is the relationship framework (identification of links), between business strategy and project management?	What is the process that your organisation is following for the implementation of a strategic decision? Explain the steps and the phases followed.
2	Which are the influences of the key strategic factors on the relationship (between strategy and project management)?	According to your experience which factors are influencing the implementation of a strategic decision?
	B. Research Questions	
1	What are the key links and what are the relationship issues between strategy and project management?	Based on the answers from the Q2 question, which were the most critical factors by your experience?
2	How are these issues affecting this relationship and at what level?	By your opinion in what ways those factors are affecting the implementation of a strategic project by using project management process?
3	What are the current gaps between business strategy and project management?	What problems or issues did you faced during the implementation?
4	What influences emanate from the organisational strategy context?	Can you describe any incidents came from upper management or operational support of the organisation, which affected the project management process?

Appendix 2. Data collection plan

Timing of Collection	Collection Method
During November 2007 to February 2008	Observation
During 1 - 15 March 2007	Interviews
During 15 March - 30 April 2008	Delphi Technique

Table 2.1 Data collection plan

Appendix 3. Influencing Factors codes

Factors	Codes
Organisational strategy and operating plans	OS & OP
Portfolio, Program Management and Projects Prioritisation	PP&PP
Upper management consensus and influences	UMC&I
Organisational culture	OC
Organisational Politics	OP
Organisational knowledge management	OKM
Human Factor	HF
Organisational Quality	OQ
Organisational bureaucracy	OB
Operational processes support	OPS
External environment influences	EEI
Ethical factors	EF
Organisational complexity	OCx
Organisational communication	OCom
Project management process	PMP
Information Technology	IT
Stakeholders	S
Project Earned Value management	PEVM
Project Management Flexibility	PMF
Project time and cost control	PT&CC
Risk management	RM
Project Management Office (PMO)	PMO
Project management strategy	PMS
Organisational maturity on project management	OMPM

Table 3.1 Influencing factors codes

Appendix 4. Interview questions

Open-Ended Interview Questions (OE-IQ)

1. What is the process which your organisation is following for the implementation of a strategic decision using project management process?

2. Based on the answers from the previous questions, by your opinion, which are the most critical factors that could be identified?

3. By your opinion in what ways are those issues affecting the implementation of a strategic decision through project management process?

4. Could you describe the most critical obstacles or incidents/problems, or any issues faced during a strategic project implementation came from organisational context?

5. Could you describe any incidents which had an affection in the project management process, emanated from upper strategic management context?

6. Could you describe any incidents which had affection in the project management process derived from inside the project management context?

Appendix 5. Interview letter

THE NOTTINGHAM TRENT UNIVERSITY

NOTTINGHAM BUSINESS SCHOOL

Research coordinators:

Professor Diane White / Nottingham Trent University

Professor Dimitrios Tseles / Dean of Technology Engineering Institute of Piraeus

Researcher[1]: George A. Vassilopoulos

Questionnaire topic: "The Links between Organisational Strategy and Project Management"

Mr/ Mrs,

My name is George Vassilopoulos and I work as Project Manager in INTERAMERICAN, in the Division of Information Technology, IT Demand Department. At the same time I'm a DBA candidate at Nottingham Trent University. My professional and academicals interests are focused on the above mentioned topic, because I believe that the successful implementation of Business Strategy is a crucial factor for any organisation. Strategy implementation and project management have developed quite separately, and independently. On the other hand, today, Project Management is perceived as an important vehicle and tool of modern strategies implementation. For this reason, I appreciate your involvement to the investigation of this research topic and I would therefore like to ask you to arrange a meeting with me, whenever it is convenient for you, in order to discuss relevant issues. I will thus have the opportunity to explain you in detail the research project and ask for your co-operation and your confirmation by consent form. Your experience and your views will be very valuable for the progress of this research. The answers of the interview will be treated with confidentiality and used for academic purposes only. The results of the study will be communicated back to you at the end of this research project, accordingly.

Thank you in advance for your co-operation.

George A. Vassilopoulos

DBA Candidate

[1] "This research is performed in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

Appendix 6. Participants' information and consent form

THE NOTTINGHAM TRENT UNIVERSITY

NOTTINGHAM BUSINESS SCHOOL

DOCTOR OF BUSINESS ADMINISTRATION

The Links between
Organisational Strategy and Project Management

Participant information sheet and consent form

George A. Vassilopoulos

March 2008

Research objectives

The primary objective of this study is to identify all those links and reveal any gaps in the relationship between the business strategy key decisions and their implementation through project management process. Furthermore, the considerable extent of this research is to investigate those factors that influence this relationship. There is also the vision for the development of a “Strategic Link Model” which will participate in the active role of the translator between the organisation strategy and project management contexts, such as portfolio, programme & project processes.

Research ethical issues

The current research from an ethical standpoint will be conducted in accordance with fundamental and widely accepted principles, such as:

- Beneficence - 'do a positive good'
- Organisations and Participants Non-Malfeasance - 'do no harm'
- Informed Consent
- Confidentiality, anonymity and data privacy

Research procedures

- Negotiating access is requested from organisations through personal or via e-mail communication. Participants will be informed in order to understand the processes that will be engaged according to the scope of this research.

- Voluntary participation is requested from the organisations and participants and they will not be coerced to re-engage if they decide to withdraw. The participants will be given the opportunity to express any issues of concern pertaining to the research documentation given to them.

- Some of the interviews will be audio-taped in order to facilitate the compilation of data.

- The process, in which focus groups/interviews will be taped, will be highlighted at the outset of every interview and participants will be given the choice to decline.

- The confidentiality and anonymity of participants' data will be assured as the norm for the ethical conduct of the research.

- The gathering of this research data will be done using quantitative methodology, while the disclosure of names, addresses, occupational and location details will be avoided.

- Anonymity will be assured by removing any such sensitive information from the study presentation. Issues from this research which may include sensitive or confidential information, will be dealt with by gaining consent from the participated organisations.

- All material gathered during this research will be treated as confidential and will be stored by a secure method. It will be made clear to participants that first, information will be shared with other academic researchers under strict terms and conditions, and secondly, that anonymity will be exercised.

It is important to demonstrate this confidentiality agreement by obtaining written consent from all participants in order to use the information for the present research, so it is required to fill-up the following form and return it to the researcher for keeping it as evidence in ethical approval process of NTU.

CONSENT FORM FOR THE DBA RESEARCH STUDY

Title of Project: The Links between Organisational Strategy and Project Management

Name of Researcher: George A. Vassilopoulos

	Please tick to confirm
• I confirm that I have read and understand the information sheet dated ..... (Version .....) for the above study.	☐
• I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
• I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without any of my legal rights being affected.	☐
• I understand that relevant sections of any of research project's notes and data collected during the study may be looked at by responsible individuals from NTU, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
• I agree to my company being informed of my participation in the study.	☐
• I agree to take part in the above research study.	☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

When complete, 1 copy for participant: 1 copy for researcher site file: 1 (original) to be kept in research project notes.

Appendix 7. Influencing factors analysis with quasi-statistics method

Factors	Codes
Organisational strategy and operating plans	OS & OP
Portfolio and Program Management and Projects Prioritisation	PP&PP
Upper management consensus and influences	UMC&I
Organisational culture	OC
Organisational Politics	OP
Organisational knowledge management	OKM
Human Factor	HF
Organisational Quality	OQ
Organisational bureaucracy	OB
Operational processes support	OPS
External environment influences	EEI
Ethical factors	EF
Organisational complexity	OCx
Organisational communication	OCom
Project management process	PMP
Information Technology	IT
Stakeholders	S
Project Earned Value management	PEVM
Project Management Flexibility	PMF
Project time and cost control	PT&CC
Risk management	RM
Project Management Office (PMO)	PMO
Project management strategy	PMS
Organisational maturity on project management	OMPM

Table 7.1 Influencing factors codes

Factors	Business Strategy	Portfolio Management	Program Management	Project Management	Total rate of affection
OS & OP		4	3	2	9
PP&PP	2		3	2	7
UMC&I	5	4	3	2	14
OCx	3	2	2	4	11
OP	4	3	3	4	14
OKM	2	4	4	5	15
HF	3	3	4	5	15
OQ	2	3	3	4	12
OB	1	2	3	4	10
OPS		1	3	4	8
EEI	3	2	2	2	9
EF	2	2	2	3	9
OC	2	2	3	4	11
OCom	3	4	4	5	16
PMP		1	2	5	8
IT	2	4	4	5	15
S	1	1	2	4	8
PEVM		1	1	3	5
PMF		1	2	4	7
PT&CC		4	4	5	13
RM	1	2	3	5	11
PMO	1	4	5	5	15
PMS	2	5	5	5	17
OMPM	2	5	5	5	17

Table 7.2 Influencing factors against links assessment matrix

Influence	
level	Rate
1	Low
2	Low to Medium
3	Medium
4	Medium to High
5	High

Table 7.3 Influencing factors links rating level

Influence	
level	Rate
1	Low
2	Medium
3	High

Table 7.4 Influencing rating level between factors

Factors	OS & OP	PP&PP	UMC&I	OC	OP	OKM	HF	OQ	OB	OPS	EEI	EF	OCx	OCom	PMP	IT	S	PEVM	PMF	PT&CC	RM	PMO	PMS	OMPM	Total affecting to
OS & OP											1												1	1	3
PP&PP	3																						1	1	5
UMC&I					3		2	2									2					2	1	1	13
OC					2		3	2	2		1	2		3									1	1	17
OP	3	2	3				2										2						1	1	14
OKM																					3		1	1	5
HF		3		3	3	3		3		3		3		3	3				3			3	1	1	35
OQ				2			2		2	3			3	3	3	2			3	2	3	2	1	1	32
OB						2				3			3	3	3	1			3	3			1	1	23
OPS													1		3							2	1	1	8
EEI	1		2	1									1										1	1	7
EF																							1	1	2
OC																							1	1	2
OCom									3						3		3						1	1	11
PMP																							3	3	6
IT						3		2	1	2				3					3	2	2	3	1	1	23
S																							1	1	2
PEVM																							1	1	2
PMF																		3					1	1	5
PT&CC							2	2										3					1	1	9
RM																		3					1	1	5
PMO																							1	1	2
PMS																								1	1
OMPM																						3	3		6
Total affected by	7	5	5	6	8	8	11	11	8	11	2	5	8	15	15	3	7	9	12	7	8	15	27	25	

Table 7.5 Cross-influencing factors assessment matrix

DOCTOR OF BUSINESS ADMINISTRATION

The Links and the influence factors between Organisational Strategy and Project Management

Document four

A report on a piece of structured research

George A. Vassilopoulos

"Document 4 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

October 2008

Table of Contents

1. Introduction

The social construction of reality refers to the processes humans use to actively create and shape the world through social interaction (Berger et al 1967). Concurrently, Newman (1995) describes it as a process by which human-created ideas become externally given realities handed down from generation to generation. Earl (2005) argued it is never known whether there is an objective reality experienced subjectively or our concepts are illusory. Similarly, positivists drown in the belief that such views are real and true. This view, however, must be based on faith. Moreover, postmodernists deem that nothing is obtained objectively and reject the findings of social science. Human beings demonstrate an extensive and robust ability to establish agreements as to what is real and what is not.

Each approach brings special strengths, while also compensating for the weakness of the other. It is useful to work in both sides by tapping into theoretical findings that can be brought to bear on the study of organisational social research. Whether something like prejudice really exists, research into its nature can still take place since many people agree that prejudice exists, and researchers can use agreed-on techniques of research to gather relevant data. Giddens (1994) argued that understanding of social structures has to take into account the ability of human factors to form purposes and meanings and the resulting potential creativity and freedom of social action, even if this freedom can be constrained in several ways. Under the light of the previous arguments, it is understandable to this researcher that there will be different participants' experiences to collect through this survey research.

Quantitative research has been subjected to a lot criticism on the view that the natural science model is inappropriate for studying social environments (Bryman 2006). By using qualitative methods, it is often possible to understand the meaning of the numbers produced by quantitative methods. Counting and measuring are common forms of quantitative methods.
Surveys are generally used to obtain responses from a sample that can be coded with variable labels and statistically analysed, with the results being generalized to a wider population. Due to the nature of the questions asked and the process of analysis, the survey is generally defined as a quantitative method, and is utilised to examine widespread social issues, whereby the results of a sample can be generalised upon to reflect society as a whole.

The result of quantitative research is a number, or a series of numbers, often presented in tables, graphs or other forms of statistical data during analysis and presentation. Quantitative research emphasizes quantification and positivism in the collection and analysis of data that entails a deductive approach to the relationship between theory and research and by testing

the theories against research results. It embodies a view of social reality as an external, objective reality (Bryman 2006). The researcher will use quantitative methods to quantify and assess the conditions under study and seek to investigate the relationships between variables using systematic controlled analysis and observations of results. The chosen sample of the population of interest, and the associated statistical procedures, will help to test the hypotheses and verify, or refute, the theories (Lewis-Beck 2003).

Statistics is the science and practice of developing human knowledge using empirical data. It is based on statistical theory which is a branch of applied mathematics. Within statistical theory, randomness and uncertainty are modeled by the theory of probability. Since one aim of statistics is to produce the "best" information from the available data, some authors consider statistics a branch of decision theory. Statistical practice includes the planning, summarizing, and interpreting of observations, allowing for variability and uncertainty.

Document objectives

The importance of research questions and their suitability for structured, survey-based research is presented in this chapter. Subsequently, the statistical methods used for analysis will be identified in the analysis chapter. The methods used, and the implementation of research instruments, will also be touched upon. In addition, the construction of the questionnaire, the sample, size and the design of the plan will be included.

Surveys are an efficient and flexible way of collecting a wide range of information from a large number of respondents. They are rather easy to administer as they can be standardized and relatively free of errors. The data collected is specific due to the focus provided by standardized questions that are only relevant to the subject being researched. During the creation of the survey, the researcher has to make several decisions. The treatments, or conditions, are based upon the objects, or subjects, of the investigation. This is done in order to test the hypothesis as well as which variables of interest should be measured.

The choice of the sample and, thus, the portion of the population of interest that will be used in the study also needs to be taken into consideration. This is aimed at collecting samples that are random, representative and sufficiently large for the scope of the research. Recognition of the uses, abuses, limitations, and strengths of surveys and statistically based research will also be touched upon. In addition, special care has been taken to avoid bias. Lewis et al (2003) mentions that bias is a tendency for the measurement of a variable to be affected by an external factor. Finally, analysis of the findings, including the use of appropriate statistical

techniques, evaluation of arguments, and the psychology of judgement, are presented in chapter three.

The overall conclusions of the statistical analysis are elaborated upon in the fourth chapter. This is done by identifying the implications of the research findings on a professional, managerial, or organisational practice. This will be followed by the identification of the most important factors; the sequence of elements of project management context that should be used, the implications of findings in model formulation, and its modification. Furthermore, the statistical analysis results will be compared with the literature review findings of document two and by the qualitative research of document three. Finally, the fact that the possibility of using chaos theory, for the between factors, influences analysis in relation to "project management context", will be reflected upon. Further research opportunities, and their limitations, are discussed at the end of each chapter. In line with this approach, the researcher believes that the study of document four and the previously mentioned two documents (literature review and qualitative research) provides important information for the formulation of conclusions.

Research questions

In this section, based on what is revealed by the literature review and the qualitative research findings, the deduction of the appropriate research questions, which will be subjected to empirical scrutiny, is required. This will be achieved by translating those findings into researchable entities.

The primary objective of the research questions is to collect appropriate information in order to assess and validate the resulting material with literature review and qualitative research results. After the collection of the appropriate data from completed questionnaires, the analysis will be performed by using descriptive statistics.

The strategic question

The main strategic question, contributing to the re-construction of the "SIM" model, is as follows:

"How can the various factors that influence the implementation and success of a strategic project be used to improve the effectiveness of the "project management context" processes?"

In the following paragraphs, the research questions and the statistical analysis used are explained comprehensively. The first research question to be answered in this study is:

1. Which elements of project planning and implementation do respondents say should be used, and in what sequence?

In other words, what combination of project planning paths is it believed is used by project managers for the implementation of a strategic project i.e. through portfolio and program management, project management on its own or some other mechanism?

Based on the previous question, another research question that needs to be answered is:

1a. Do respondents think that the sequence of elements of project management, that should be used are, in fact, used?

The first questions, 1 and 1a, are related to the previous documents two (literature review) and three (qualitative research), which showed that business strategy is linked to project management through operating plans, portfolio management and program management. Those questions will be used to validate this linkage.

Thus, the statistical analysis of answers to previous questions will be performed in order to reveal the proportions of implementation paths that are followed. In addition, the researcher will analyze answers to Q1–Q3, in relation to path-used categories of questionnaire choices (S1–S5) to implement a strategic project (see appendix 52 for S1–S5 code descriptions).

The minimum, maximum, mean and standard deviations of the sample will be shown using descriptive statistics in order to identify the degree of possessiveness of the answers. The test of probability (p-value of PCM1–PCM5 categories) of obtaining a result, as the one that actually was observed, will also be calculated.

In addition, the coefficient of determination (R^2) will be calculated, with the main purpose to predict future outcomes based on other related information. This will provide a measure of how well the model is likely to predict future outcomes.

Finally, calculating the correlation coefficient will reveal the degree of association between two variables of project management context and the strength of their linear relationship (see appendix 5a for PCM1–PCM5 code descriptions).

The second research question this study will answer is:

2. **By assessing the six main factors found in qualitative research, what do respondents think is the level of their importance in influencing the effectiveness of the overall project management process?**

To address this question, statistical analysis will be performed by validation and assessment of the significance of the most important factors found by qualitative research.

The statistical analysis of previous data will be performed by the calculation of average scores (F1-F29). The most important factors that will be revealed will be sorted by their highest score. This will be calculated by an assessment of Likert scale scores based on the answers to Q1 – Q32. In turn, their overall average scores will also be presented.

In addition, the significance and the proportions of those factors will be assessed. Likert scale scores will be calculated for their significance by using statistical contingency tables. Finally, a cross tabulation of Q1-Q32 with S1-S5 path categories will be performed as well (for S1-S5 codes descriptions see appendix 5a) in order to identify the degree of influencing factors in association with preferred paths.

The third research question to be answered in this study is:

3. **What do respondents think are the main factors that influence the component elements of project management context?**

This means what do the respondents think are factors that influence the elements (PCM1–PCM5 categories) of project management context. The project management context is defined in the conceptual framework chapter of document three. This will be a new approach based on an assessment of the priority of the influence of certain factors (the PMC1- PMC5 codes identification is displayed in appendix 5a).

The statistical analysis of answers will be performed by calculating the percentage proportions of factors (F1-F29) in correlation to each of the project management context elements. A first list of the most important factors will be revealed from their average (descending sorted) scores. For this scope, average percentage scores (in descending order) of

influencing factors (through the assessment via Q4-Q32) and choices of influencing factors (F1-F29)), will be used.

The histogram of distribution of average positive percentage scores will be calculated in both assessments (from Q4-Q32) and the answers to the influencing factors (F1-F29) lists of section C of the questionnaire. The calculation of summary statistics of average percentage proportions of influencing factors (F1- F29) assessment per implementation path used (S1-S5), will be performed as well.

Following the previous analyses, descriptive statistics will be used to describe the F1-F29 influencing factors per implementation path used categories (S1-S5). The previous statistical analysis will be used for the presentation and shape of the distribution, the central value, and the variability of percentages of choices-limitations.

The extreme values in those data sets categories (maximum and minimum values), the lower and upper quartiles, the median and the distribution and the categories range will then be presented. Finally, the calculation of percentage proportions of influencing factors (F1- F29) per implementation path preferred (S1- S5) and per project management context (PMC1-PMC5) elements, will be presented (S1-S5 and PMC1- PMC5 codes descriptions are displayed in appendix 5a).

The subsequent research question to be answered, then, is as follows:

4. **Do respondents' views on previous questions vary according to their age, experience or other demographic features?**

Scores from the answers to this question will be used to classify the percentage degree of affectedness, based on respondents' demographic features. The respective data will be analyzed by calculation of the proportions of positions in the organisation and the proportions of years of experience in project management. This is done in order to observe the distribution of the sample in regards to the correlation between them.

In addition, the percentage proportions of years of experience categories, in association to an assessment of influencing factors, will also be calculated in order to identify the distribution of opinions regarding influencing factors in association with experience on project management. Furthermore, a presentation of the dispersion of percentage choices of influencing factors (F1-F29), by each participant's years of experience category, will take

place. In that case, the calculation of the percentage difference between the answers from those with more than 5 years experience and those with 1-5 years will be performed in order to observe the difference of opinions, regarding factors of influence and implementation paths, based on years of experience.

Similarly, the percentage of influencing factors (F1- F29) from the answers will be performed in relation to the total percentage of years of position in organisation categories. Finally, a cross tabulation of Q1-Q32 will be performed in correlation with the position in the organisation data. This will be done in order to assess the distribution of answers degrees.

At this point, the calculation of frequency distribution will help to get a better view of the status of the data. In turn, the Standard Deviation and the Frequency Distribution will be calculated by looking at the results for the different demographic subgroups, focusing particularly on the items where interesting views are in frequency distributions.

Finally, the main validation of the positive tendency of participants' answers will be achieved through the following question:

5. **What is the level of the positive bias tendency according to respondents' answers in respective questions in relation to literature review and qualitative research results?**

The assessment of the positive bias tendencies of participants' answers will be performed via the analysis of Likert scale scores. Moreover, a comparison of the average percentage of positive answers from Q4-Q32, in relation to influencing factors (F1-F29), will be performed.

At this point, a box plot analysis will be used to indicate whether a distribution is skewed and whether there are any unusual observations (outliers) in the data set. The same analysis will be used to analyse and present an assessment of the average positive percentage of factors, based on survey questions (this means participants' assessment from Q4-Q32). In turn, the assessment of average percentage of influencing factors (F1-F29 in total project management context) will also be calculated in order to assess the most important factors.

In summation, the calculation of the relationship between variables will be applied by using contingency tables. Descriptive statistics will be used to present the arithmetic mean, median and mode of the samples. The samples will then be tested for their validity and central tendencies. Also, a chi-square test, for differences, will be applied accordingly. The

Cronbach's alpha statistic will be used to measure the coefficient of reliability, and consistency, as well as the dispersion and variance between samples' values.

Lastly, the additional qualitative information (Open Ended; Non-Numeric Data) will be discussed. It is important to understand and analyse the results from the comments that participants have provided. This means to look for trends in the qualitative data collected from the survey. A larger number of participants are probably needed to spot trends, but it is important to identify any, even from those collected. Such qualitative data analysis will be performed by reading through all the comments in order to get a feeling of what participants are saying and then categorize them into respective interest areas. After the categorisation, each category will be analysed separately by looking for how many unique comments exist, how detailed they are and how strongly they are stated. The identification of which categories are more important and which are less important will then be performed. Similarly, the different subgroups will be looked at to see if any relationship exists between demographic groups and categories of comments.

Questions 2, 3, 4 and 5 are formulated according to results from the qualitative research (see appendix 4). Their answers will be assessed in relation to the factors found in theory and qualitative research results. This will be performed to determine the degree to which they affect the context of project management (in regards to the implementation of a strategic project).

Subsequently, the factors of influence illustrated in Appendix 4 are coded for better manipulation during the statistical process. This is achieved by using the codes F1 to F29. The formulation of questions, by using codes Q1- Q32, is also shown in appendix 4. The full questionnaire is presented in appendix 1. In addition, the influencing factors (codes F1 – F29) are presented in correlation with the survey questions in tables 4.2 and 4.2a.

The assessment and validation of those factors will also be achieved through the survey questionnaire data collection and statistical analysis. The survey participants will assess the six main factors, by using the Likert rating scale, at the end of the survey.

The aim is to also test the revised conceptual framework (Figure 1.1) based on qualitative results and to, subsequently, identify the relationships between those factors found from literature review (Appendix 4).

The theory-based “tentative” explanation will then be tested in order to predict the causal relationship between factors as the main findings of the quantitative research. The links and factors found in theory (which are validated and re-identified by qualitative research results) will be found to effect the implementation of a strategic project in various ways. After the formulation of the research questions, the researcher will proceed to establish the probability of observing this data statistically. This is commonly called the "significance level" of the results.

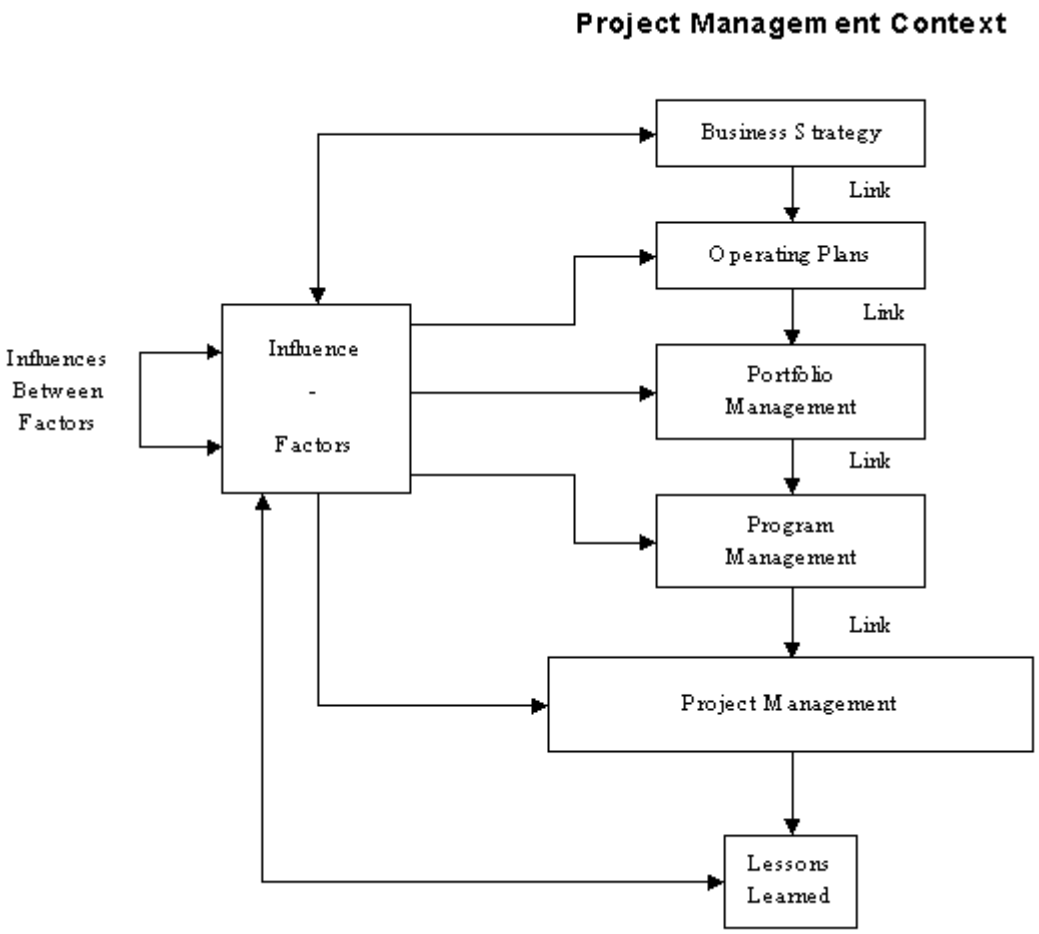


Figure 1.1 The revised conceptual framework by qualitative research

Human factor
Organisational quality
Information technology support
Organisational communication
Project management strategy
Organisational project management maturity

Table 1.1 The most important factors found in qualitative research

Quantitative analysis implementation steps

The quantitative research will progress according to the following steps:

1. Create the survey questionnaire according to findings from literature review and qualitative research.
2. Send the questionnaires to survey participants for completion.
3. Formulate the statistical analysis plan.
4. Perform a statistical analysis of the collected data.
5. Interpret the results by applying the decision rules described in the analysis plan.
6. Conclude and review.
7. If necessary, modify the model's framework under the light of the new findings.

Answers to research questions will be given through statistical analysis results. As previously stated, the next step will be to assess those results with the findings of documents two and three in order to apply amendments to the *Strategy Implementation Model (SIM).*

Finally, in this document, the researcher will examine, quantitatively, the main research subjects; the relationship and the links (implementation paths) of the "project management context" elements and their influencing factors. It is believed that the final benefit of this study will be the presentation of the most accurate, up-to-date picture of the best practices in project management giving organisational team members, project leaders and executive sponsors a first-hand account of what is really happening, in practice, today.

2. Quantitative research methods

Quantitative research methods are investigative techniques involving anything that is quantifiable in order to reach an in-depth analysis of the object studied. It can be characterized as a linear series of steps, exhibiting certain preoccupations, such as measurement, causality, generalization and replication, by moving from theory to conclusion. The measurement process entails the search for indicators. On the other hand, there is a need to say that qualitative methods are commonly used in conjunction with quantitative methods.

Quantitative Analysis

The epistemological perspective stresses that analysis of each domain, or problem, requires one or many appropriate methods that allow the researcher to investigate phenomena of interest. Dietmar (2001) states that combining various methods, especially when coming from seemingly diverse directions (like qualitative and quantitative research traditions), may be fruitful since they are likely to bring various aspects of the phenomenon being researched to the fore. This critical perspective emphasizes that the quantitative method forces the objects under investigation into a narrow framework that puts the researcher into a more powerful position. Bringing together theories and data in a meaningful way can take many forms.

Quantitative and qualitative

Quantitative and qualitative methods are two major classes of the way this endeavor is accomplished. Driven by a qualitative research interest, the researcher may be interested in the peculiarities of a particular perspective or mindset of a subject or group. When looking from a quantitative point of view, the researcher wishes to know to what degree the subject adheres to a certain perspective. The goal of this contribution is to delineate knowledge tracking, which is a method that can be used to describe and assess cognitive representations, of subjects and researchers, from both a qualitative and quantitative point of view (Janetzko 1996).

The process of data collection

According to Bryan (2006), there are six main steps in quantitative research - making the hypothesis, designing the questionnaire, selection of the target research sites and respondents, collection of the resulting data, analysis of said data and, finally, formulation of the conclusions. While qualitative research reveals in-depth knowledge of social business contexts coming from the unstructured, open ended approach of data collection, quantitative research will help by providing the hypothesis to be tested. It is also useful in survey questionnaire design and the measurement process.

The analysis of data

The analysis of the collected information will include descriptive statistics to sufficiently describe the major characteristics of the data sets. Similarly, descriptive statistics will be used to measure the level of key variables. The statistical tests will be performed for each of the hypotheses or research questions. In addition, multivariate analyses will be conducted in order to strengthen the internal validity of the study. The intension is to produce statistical tests to asses the plausibility of the research hypotheses. Generally, in order to test the hypotheses in non-experimental research, it is important to refer to theory by making claims of cause and effect. This includes the identification of mediating and moderating variables. An important comment here is that conclusions of cause and effect will be much weaker in non-experimental research as opposed to strong, experimental and quasi-experimental research since it is not possible to manipulate the independent variables.

Deductive and inductive approaches

Inductive

The inductive approach looks at the data first and then attempts to build a theory that will explain it, while a deductive approach starts with a theory and then looks at the evidence. In practice, these two logical modes are complimentary: the inductive approach is used in the development of theory and the deductive approach is used in the verification of theory. Used together, the two methods are much stronger than either one used separately. An important example of induction is the formulation of general theories on the basis of events observed in specific situations.

Deductive

Deduction goes the other way by making predictions, about what will happen in a specific situation, from a general theory. Deductive logic is used to verify theoretical explanations. If a theory is true, logical implications of the theory would be evident by looking in the right places. Since theories are statements about the relationships between concepts, it is likely that, if the theory is valid, the same relations will be seen between specific concrete instances of the concepts.

In other words, if a theory is true, the hypotheses logically implied by the theory should also be true. This is deductive reasoning by moving from the general to the specific. By using a deductive approach (theory-to-data), the results from the literature review and the qualitative research findings will be tested against observed data. A failure of the data to fit the hypotheses might be taken as an indication that there is something wrong with the hypotheses,

with the measurement methods (and thus, with the data), with the methods being used to compare the data to the theory, or with the logic leading the researcher to expect the theory to fit the data. In descriptive research, the goal is to obtain a complete and accurate description of events, conditions, circumstances, processes, and relationships surrounding the situation under study.

Using explanatory research

Explanatory research is the most demanding kind of research, and it requires the use of special methods to identify causes and effects. To get at explanations of causal relationships between events and circumstances, a different kind of research would be more useful (William et al 2008). This study will use a deductive approach according to the following characteristics: As this study is explanatory, it is applicable to use a deductive approach to explain the existence and the correlation between variables. Data that the unbiased researcher observes, as well as the concepts that are found, should be put together in a way that enables facts to be measured quantitatively.

Definition of variables

The basic building blocks of quantitative research are variables. Variables (something that takes on different values or categories) are the opposite of constants (something that cannot vary, such as a single value or a category of a variable). Independent variables are the presumed cause of another variable. Dependent variables are the presumed effect or outcome. Dependent variables are influenced by one or more independent variables. Sometimes there is a need to understand the process or variables through which one variable affects another. This brings the idea of intervening variables (also called mediator or mediating variables). Intervening variables are variables that occur between two other variables. The variables in this study will be defined in the analysis chapter.

The questionnaire design

Fisher (2004) states that questions should be as short and succinct as possible with a logical, sequential structure (in accordance with the research subject) so that the participants can understand the research scope. Robson (2002) suggests that a questionnaire should provide a valid measure of the research questions in order to elicit accurate information, based on perfect co-operation between researcher and respondents. As a result, the researcher needs to design the questionnaire to be short and simple in order to produce valid measurements.

The design and purpose of questions:

The purpose of the survey questionnaire is to collect the participant's opinions on project management links and their influencing factors. In the questionnaire, section A (Q1-Q3) is formulated to asses the links while section B (Q1-Q32) is developed to asses the factors. In appendix 4, the relationship between influencing factors (F1 – F29) and survey questions (Q4-Q32) is illustrated.

The assessment of the implementation path, used in participants' organisation for a strategic project, is coded through categories S1- S5 (appendix 1), accordingly. The assessment of the most important factors, found in document 3 analysis, is examined in section C by using a Likert scale (1-3).

The assessment of influencing factors affecting the project management context elements (organisational strategy, operation plans, portfolio management, program management, and project management) is performed in this section as well. The goal of this assessment is to cross check (according to the participants' opinions) the 29 influencing factors (F1 – F29) against each of the project management context's elements.

Participants' position in the organisation is the final category of assessment. This information is collected by using a scale of 1) Project Management, 2) Business Management and 3) Other.

Participants' years of experience in project management is also collected. The scale of 1)1 - 5, 2) 5 - 15, 3)15 - 25 and 4) More than 25 years, is used. This will be used for the assessment of results based on whether those with few years experience give answers that are less authoritative than those with greater experience.

Finally, there is an opportunity for the survey participants to express their additional comments regarding the research subject.

Demographic questions

According to the three stages theory, suggested by Collingwood (2006), initial questions should be screening and rapport questions. Second stage questions should be specific, hypothesis related, while third stage questions should be about participants' demographics. Consequently, demographic questions (position, years employed with company, etc.) will be at the end of the questionnaire. By then, having built a rapport with the interviewee, the survey will elicit more honest responses to such personal questions.

Formulation of questionnaire

At this point, mail and internet questionnaires will do the same as in-person surveys, although the rapport must be built by good question design, rather than a face-to-face connection.

There will be close-ended questions as well, which will provide quantitative data based on the researcher's response categories. Rating scales used will be numerical (1 – 4 or 1 - 3) where the endpoints, center point and area in-between is also labeled (Creative Research Systems 2008). Ideally, the earlier questions in a survey should be easy and pleasant to answer. These kinds of questions encourage people to continue the survey. Question order can affect the results in two ways. One is that mentioning something (an idea, an issue, etc) in one question can make people think of it while they answer a later question, when they might not have thought of it if it had it not been previously mentioned. In some cases, the researcher might be able to reduce this problem by randomizing the order of related questions. Separating related questions with unrelated ones can also reduce this problem, though neither technique will eliminate it. There are two broad issues to keep in mind when considering the choice of question and answer order. One is how the order can encourage people to complete the survey, and the other issue is how the order could affect the results of survey.

Habituation

Another way that question order can affect results is habituation. This problem applies to a series of questions that all have the same answer choices. It means that some people will usually start giving the same answer, without realising it, after being asked a series of similar questions. People tend to think more in the beginning of a survey and so give answers that are more accurate. A way to reduce habituation is to change the “positive” answer or the expression of the question. This applies mainly to level-of-agreement questions. This technique forces the respondent to think more about each question. One negative aspect of this technique is that the researcher may have to modify some of the data once the results are entered. Survey participants may be more likely to respond if they think the organization is asking their opinions on how it can best meet their needs.

Bias

It can also be said that biased questions will produce biased results, so this researcher will try to exclude as much bias as possible, although it is almost impossible to exclude all. Since the survey was translated to Greek and international PMI chapters, North and Latin America, EMEA and Asia Pacific, it is believed that there will be no bias in online web questionnaire answers.

Finally, it is important to note that the survey method used for this study was affected by the following factors: time required to collect the data, cost, respondents’ availability and the difficulty level of data collection using automated data entry.

Questionnaire sections

In essence, the survey questionnaire is composed of three sections; A, B and C. They include questions related to factors found from literature review and qualitative research. Section C includes questions for the rating of the most important factors. Some questions were designed to provide the commission with a profile of those individuals completing the questionnaire. Grouping together questions on the same topic also makes the questionnaire easier to answer. The main questionnaire is illustrated in Appendix 1 and the online Web questionnaire in appendix 5.

The cover page has an introductory message to encourage completing the questionnaire by explaining the reason for the survey. In addition, instructions were added at the points they are needed, instead of grouping them on the first page. Questionnaires will be administered in face-to-face interviews or, in some instances, over the telephone. By phone or in person, interviewers will attempt to build a rapport with the interviewee.

Likert rating scale

An effective method for obtaining consistent survey responses is to use a Likert scale. Rensis Likert developed this direct measure of attitudes in 1932. The Likert Scale allows a participant to provide feedback that is slightly more expansive than a simple close-ended question, but that is much easier to quantify than a completely open-ended response.

The Likert Scale lists a set of statements (not questions) and provides a 4-point rating scale for which the participant can rate his/her level of agreement or disagreement with the statement. Using a Likert Scale in survey design helps to get around the problem of obtaining meaningful, quantitative answers to restricted, closed questions. This type of Scale generates statistical measurements of people's attitudes and opinions.

One disadvantage in using the Likert scale is that the respondents are limited in expressing their opinions. Surveys only gather information about the questions asked. In contrast, during an interview, the researcher can explore subjects in more depth. This weakness is covered by open-ended questions at the end of each questionnaire section. In addition, section C allows survey participants to express their personal feelings and opinions on the research. This will help to answer the remaining questions of interest to the researcher.

Organizational access and limitations of sample

Population & sample selection

It was important to the researcher to define the population before collecting the sample, including a description of the participants to be included. In this case, the "population" is all of the expert project managers and members of the Project Management Institute (PMI) chapters, world wide. A sample is a smaller group of people selected for study because the population is too large to study in its entirety. The "sample selection" for this survey is a group of representative project managers (presidents, management members, etc.) from the PMI chapters', worldwide. The sample of 180 respondents should represent the general population (Cochran 1977), (Hedayat et al 1991).

Fisher (2004) argues that a key factor for a successful survey is to have a big enough sample group. Random sample selection is used under the assumption that sufficiently large samples, assigned randomly, will exhibit a distribution comparable to that of the population, from which the sample is drawn.

Initially, participants from the PMI will be selected and communicated with via e-mail or by phone to get their agreement to participate in the survey. Salant et al (1994) survey method recommends that the introductory letter should explain clearly and concisely the reason for the research and the survey scope. A sample of this survey's contact letter is illustrated in appendix 3. The initial contacts with prospective participants may lead to additional contributers as per the snowball sampling technique in every participating organisation. The aim is to collect responses from representative business sectors, according to the layers of the research conceptual framework. Thus, participants will be selected from three groups; Business management (Strategic decisions and planning), Project management (program and project management) and other (consultants, executors and implementers).

As a result, in the survey questionnaire, participants fit into one of the following three categories:

Participants' categories

- ***Project management:*** Program and Project Managers/Practitioners (Project Management Office Managers, Project Managers or Directors of Project Management) - those championing/selling project management largely in the context of their own organizations.

- ***Business Management:*** Senior and Business Managers (Executives, Chief Executive Officers, Chief Financial Officers or Vice Presidents) - influential individuals making strategic decisions on whether to implement projects or not.

- ***Other:*** External or internal Project Management Consultants/Experts implementers (Small and Large Independent Sellers) - experts whose experiences include both successful and unsuccessful results in project management.

Survey process

The survey process will start with the explanation of the scope of the research project to the participants. Written consent will need to be signed by participants to preserve the confidentiality of gathered information. The "hybrid" technique will be used based on four types of surveys - 1) e-mail, 2) telephone, 3) in person and 4) online. Some surveys will be self-administered and some will be done by the researcher. This combination of methods will help to get more responses, faster and better. E-mails containing the consent form and the survey questionnaire will be sent to respondents to motivate them to participate online if possible. They will be self-administered by the recipient based on the instructions given online, which means there is little control over the feedback. Nevertheless, doing the survey online will be more convenient for some respondents as they will be able to complete it when and where they like.

Commonly, online surveys are considered best for the collection of sensitive information, as they provide the best opportunities for both random samples and targeted random samples as well as anonymity for the respondent. They are also the least expensive way to collect data from a large number of people. Online Web Surveys provide the potential to conduct complicated research as it assists respondents throughout the survey. It will include visual aids (images) as well as a link to a web page where the questionnaire will be available for those who prefer personal contact.

Contact by telephone will be used to help collect additional questionnaire answers. This survey method has the least chance of missing or erroneous data, primarily because it offers the opportunity for personal assistance. It also allows for relatively quick data collection.

Generally, these four types of survey method are preferred as a quicker method when the time to complete them is limited. Also, the timing schedules allowed for document four and the analysis of the collected information is applicable. The questionnaires will be sent to a range of 180 - 200 PMI expert members. The research process will strictly control any risks of unreturned questionnaires with daily follow ups by phone and e-mail.

There are many authors (Salant et al 1994, Robson 2002, Sinclair et al 1993, Bryman et al 2006) who believe that there can be better response rates from the survey participants if qualitative and friendly co-operation is established and the questionnaire is clear and understandable.

Questionnaire test

The last step in questionnaire design is to test the survey with a small number of sample participants. Ideally, the survey should be tested on the same kinds of people that will participate in the main study. The researchers' pilot questionnaire was tested on company project managers. This test allowed unanticipated problems with question wording, instructions to skip questions, etc, to be fixed.

Reliability of research findings

Reliability refers to consistency or stability. That means it is concerned with the question of whether the results are repeatable and measures are stable or not (Bryman 2006). Reliability is usually determined using a correlation coefficient (it is called a reliability coefficient in this context).

In this respect, Robson (2002) argues that reliability is not an appropriate concept against which to measure reflexive, qualitative methodologies as the results would be expected to be different to the same research conducted at another time, by another researcher, with different participants.

Denscombe (2003) states that a good level of reliability means that the research instrument produces the same data time after time on each occasion that it is used, and that any variation in the results obtained is due entirely to variations in the subject being measured. He also says that none of the variations are due to fluctuations caused by the volatile nature of the research instrument itself.

Similarly, Ellis et al (2000) states "There is no such thing as orthodox reliability in auto-ethnographic research" as researchers are narrating their story from a situated location. The test of reliability can be achieved by the Spearman-Brown split half, Kuder-Richardson -20 or the coefficient for internal reliability by the Cronbach alpha (using the SPSS package).

Readability of presented statistical results

Alternatively, Russell (2005) argues that, to enhance readability of presented statistical results, the researcher should present the findings and data analysis section under the headings

of the research questions. This can help to determine if the results that are presented clearly answer the research questions. Tables, charts and graphs may be used to summarize the results and should be accurate, clearly identified and enhance the presentation of results.

Validity

Reliability and validity are analytically distinguishable and related since validity presumes reliability. This means that if the measure is not reliable it can not be valid (Bryman 2006). Put simply, validity refers to the 'truth' of the research - 'the degree to which what is observed or measured is the same as what was purported to be observed or measured' (Robson 2002). It also refers to the accuracy of the inferences, interpretations, or actions made on the basis of test scores. Validity seeks an agreement between a theoretical concept and a specific measuring device, such as observation.

There are three main methods of collecting evidence of validity. Verification, based on content and related evidence, is based on a judgment of the degree to which the items, tasks, or questions on a test adequately represent the domain of interest. The use of the statistical technique, called factor analysis, presents the number of dimensions that are present. This form of evidence is obtained by relating the test scores with one or more relevant criteria. A criterion is the standard, or benchmark, to predict accurately on the basis of the test scores.

Ethical issues

According to the Economic and Social Research Council (2008), as this research is to be conducted outside the UK, and will be international, the researcher will need to establish the local ethics of the host country, and how the principles of the REF will be followed in developing and undertaking the research. Moreover, research ethics in developing regions raises issues about what is meant by ethics and, therefore, how we conceptualise notions of rights (consent, choice, volition, self-determination, etc) and the handling of personal data in an international context where data handling may not be subject to the UK Data Protection Act.

There are six key principles of ethical research to be addressed, whenever applicable:

1. Research is designed, reviewed and undertaken to ensure integrity and quality.

2. Research participants will be fully informed about the purpose, methods and intended possible uses of the research, what their participation in the research entails and what risks, if any, are involved.

3. The confidentiality of information supplied by research subjects and the anonymity of respondents.

4. Research participants will participate voluntarily, free from any coercion.

5. Harm to research participants will be avoided.

6. The independence of research will be clear, and any conflicts of interest or partiality will be explicit (ESRC 2008).

Passive consent

Based on previous statements, passive consent is the process whereby consent is given by not returning the consent form. Participation in this study is completely voluntary. Confidentiality is a basic requirement in all studies. It means that the researcher agrees not to reveal the identity of the participant to anyone other than the researcher and his or her staff. A stronger and even better condition is called anonymity. Anonymity means that the identity of the participant is not known by anyone in the study, not even the researcher.

All survey questionnaires will be conducted individually, on a one-to-one basis. Prior to the start of the, each participant will be provided with a plain-language statement outlining the projects objectives and approach. This statement will also specify the measures that were undertaken to protect their privacy and the security of the data provided by the researcher and participants. The statement will also ask for their consent in order to commence the survey.

Participants will be assured that the researcher will be using the following measures to ensure the privacy and security of data:

- All survey data will be stored in a locked filing cabinet located in the author's home for a period of seven years.
- Information obtained during the survey will remain private and will not be made available to the general public nor will it be sold. It will also not be re-used without the express, prior permission of the interviewee.
- All original data will be destroyed after a period of five years.

In summary, it is important to demonstrate this confidentiality agreement by obtaining the consent from all participants in order to use the information for the research. Participation in

the survey will be requested from all participants via personal communication or e-mail. They will be informed in order to understand the processes that will be engaged according to the scope of this research by e-mail and phone. Voluntary participation will be requested from them and they will not be coerced to re-engage if they decide to withdraw. The participants will be given the opportunity to express any issues of concern pertaining to the research documentation given to them. The confidentiality and anonymity of participants' data will be assured as the norm for the ethical conduct of the research. The gathering process of this research data will avoid disclosure of names, addresses, occupational and location details. All material gathered during this survey will be treated as confidential and will be stored by a secure method. The researcher will make clear to participants that information will be shared with other academic researchers under strict terms and conditions.

The next chapter outlines the statistical analysis of data collected from the survey.

3. Analysis and results

Statistical inference and descriptive statistics

Statistical inference makes use of information from a sample in order to draw conclusions (inferences) about the population from which the sample was taken. The use of influencing factors (codes F1-F29 are described in appendix 4), in the data collected, allows the results to be analysed using the suggested methods discussed in the following sections. Data analysis will extract inferences to be presented with descriptive statistics using tables and various types of graphical depictions. As the name implies, descriptive statistics explains the structure of the data. It gives the necessary information to be able to draw conclusions about the research questions and the adequacy of collected information.

Feedback reply categories

A combination of contact channels is used to get better and faster responses from the 105 completed questionnaires of the 180 that were sent out. A "hybrid" technique was used based on four types: 1) e-mail, 2) telephone, 3) in person and 4) online. Some surveys were self-administered whilst others were completed with the researchers assistance. The percentages of feedback replies are displayed in table 3.1a and figure 3.1.a. The percentage of administration on survey questionnaires is presented in table 3.1b and figure 3.1b as well.

Survey questionnaires chanells' feedback	Participants
e-mail	15
Telephone	21
In Person	8
Online	61
Total	**105**

Table 3.1a Answered survey questionnaires through different contact channels

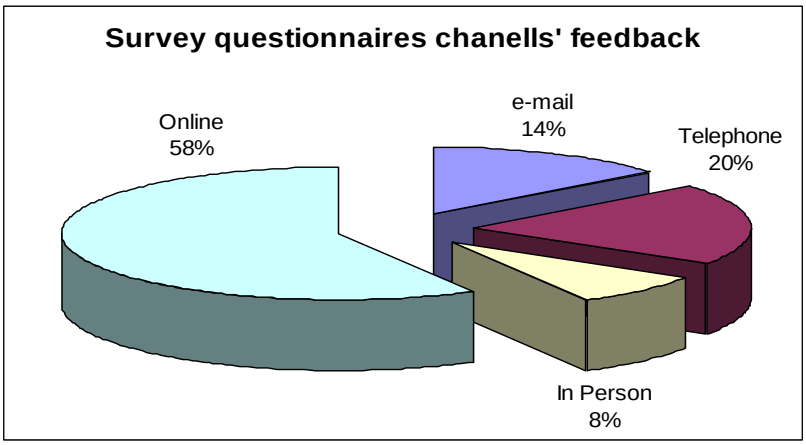


Figure 3.1a Percentage of answered survey questionnaires through different contact channels

Survey administration	
Self Administative	71
By the researcher	34

Table 3.1b Administration of survey questionnaires

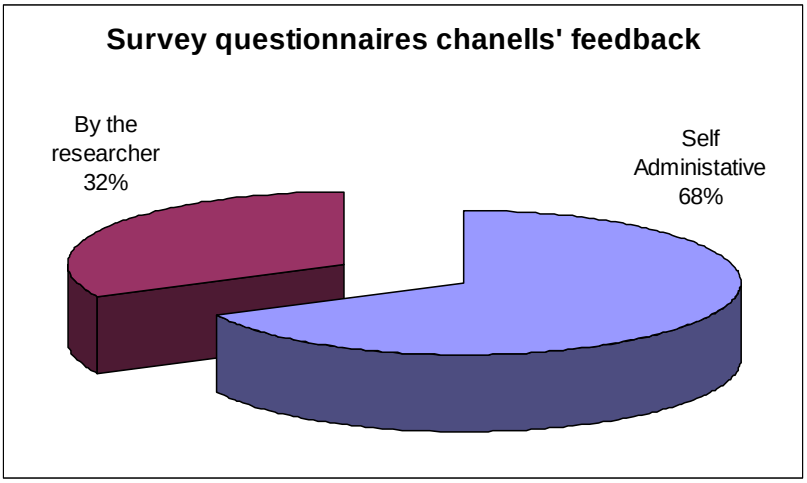


Figure 3.1b Percentage of survey questionnaires administration

Before going on to statistical analysis, it is very important to have an adequate and valid number of responses (in order to make the results statistically meaningful). The result of 105 survey responses, collected from a population of 180 survey questionnaires sent, has a reply proportion of 58.33% (figure 3.2).

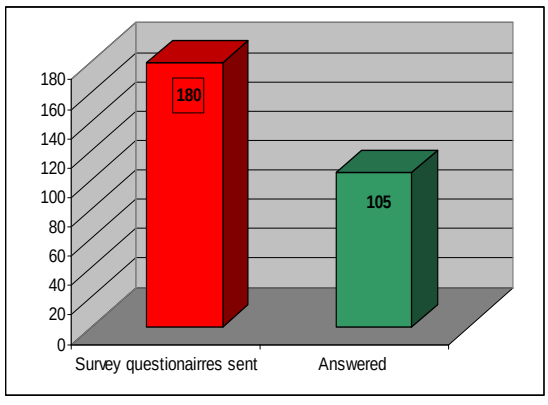


Figure 3.2 Percentage of answered survey questionnaires

The next step of the statistical analysis process is to take a look at the data and gain an accurate understanding of results by generation of a summary report for all respondents and reviews. The aim of statistical analysis is to substantiate and validate the theoretical and

qualitative research findings by using descriptive statistics, factors definition and SIM amendment.

Definition of data types and categorisation of data

Definition of ordinal data

A set of data is said to be ordinal if the values or observations can be ranked (put in order) or have a rating scale attached. This can count and order, but not measure, ordinal data. The categories for an ordinal set of data have a natural order. In this study, participants were asked to answer on a Likert's rating scale of 1-4, representing the options of "Strongly disagree", "Agree", "Agree" and "Strongly agree". Option 4 in Likert's scale indicates more confidence in agreeing than option 3, for example, so that such data can be seen as ordinal when sorted.

Definition of nominal data

A set of data is said to be nominal if the values or observations can be assigned a code in the form of a number, where the numbers are simply labels. They can count, but not order or measure, nominal data. In this case, in a data set position, project management option is number 1 and business management option is number 2. There is also another option of a different category to be answered by the participant. In the same category are the years of experience scale.

Definition of categorical data

A set of data is said to be categorical if the values or observations belonging to it can be sorted according to category. Each value is chosen from a set of non-overlapping categories. In this study, categories of PMC1- PMC5 (of project management context for the assessment of influencing factors) answers are collected and coded in table 5a.1, appendix 5a.

The category of S1-S5 (for the assessment of influencing factors answers based on the implementation path) are illustrated in table 5a.2, appendix 5a. Finally, the categories of years of experience in project management and the position in organisation context are illustrated in tables 5a.3 and 5a.4, appendix 5a.

Proportions of position in organisation

The gathered sample totalled 105 fully answered questionnaires from participants (experts in project management). 53.33% of participants were from project management, 36.19% from

business areas and 10.48% from other areas (figure 3.3). As can be observed, most of the participants were from project management and business areas. Only 10.48% were from other areas, but they were also related to and involved with project management processes. The current position in the organisational context proportions are delineated in table 3.2.

1. Project Management	53.33%
2. Business Management	36.19%
3. Other	10.48%

Table 3.2 Proportions of position in organisation

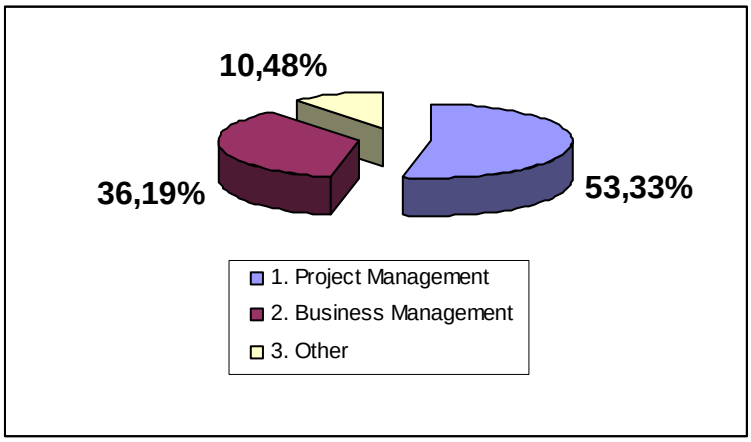


Figure 3.3. Proportions of position in organisation

Proportions of years of experience in project management

The proportions of participants' years of experience on project management are as follows – 12.38% had 1-5 years, 17.14% 5-15 years, 41.90% 15-25 years and 28.57% more that 25 years of experience (figure 3.2). Most of the participants had experience in project management of more than 5 years while an even larger percentage had more than 15 years. 12.38% with less than 5 years experience in project management was an important issue in the analysis. Years of experience in project management is illustrated in table 3.3 and graphically presented in figure 3.4:

1. 1 - 5	12,38
2. 5 - 15	17,14%
3. 15 - 25	41,90%
4. More than 25 years	28,57%

Table 3.3 Proportions of years of experience in project management

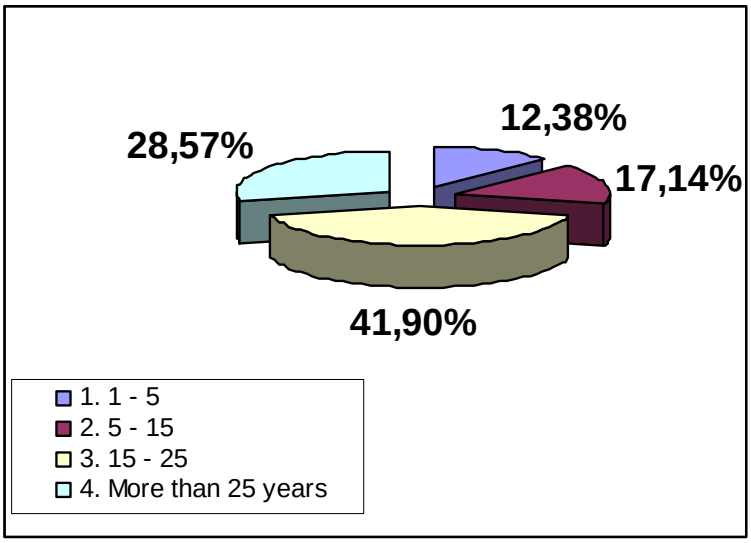


Figure 3.4. Proportions of years of experience in project management

The positive bias tendency

One of the general validations is the calculation of the degree of positive tendency of respondents' answers to the questions reflecting the literature review and qualitative research results. The main validation of all those answers will be achieved through the following question.

Question 5. What is the level of the positive bias tendency according to respondents' answers in respective questions in reflection to literature review and qualitative research results?

General Likert scale scores and bias tendency

Multiple bar charts are used to show the comparison of the samples, emphasizing the highest and the lowest rather than the precise values of the raw variable. This has the feature to optically compare adjacent bars. Proportions are compared by using a percentage component bar chart. The use of multiple bar charts is to analyse the hierarchical level. In addition, there is a representation of ordered (discrete) data and the percentage (frequency) of occurrence. In figure 3.3, the percentage proportions of Likert scale answers in the survey are delineated.

The positive tendency of participants' answers of "Agree" and "Strongly agree" can be observed as the design of the survey questionnaire was based on the concept of validating factors of influence. This is seen in the literature review of document two and the results from qualitative research interviews. The main output and observation from this analysis is that, generally, the greatest percent of participants agree with the influence of those factors during

the implementation of a strategic project. In general, a very low percentage score of “Strongly disagree” was found.

On the other hand, 10% disagreed with some of the factors and their current influence. In the following paragraphs, a more detailed proportion analysis is performed in order to display the variations of “Agree” and “Disagree”.

Average	%
Strongly disagree	0,57%
Disagree	10,00%
Agree	61,73%
Strongly agree	27,71%

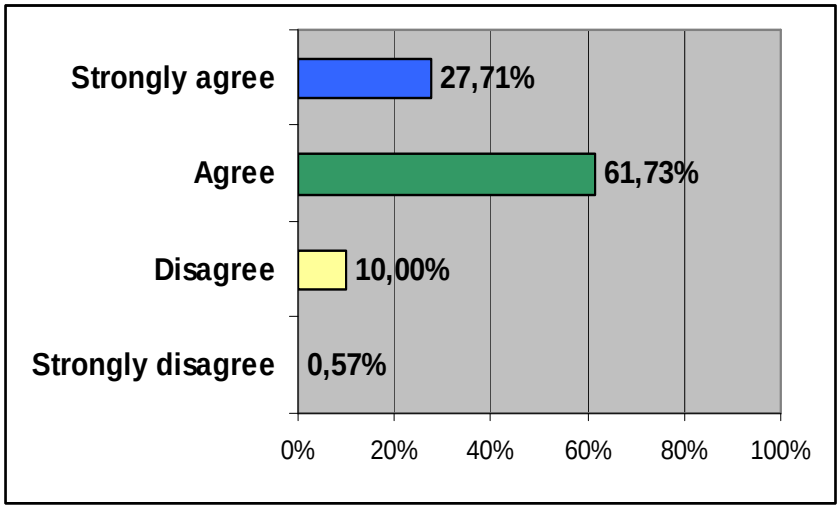


Figure 3.3. Overall scores of Likert scale answers

Definition of the range of samples

The range of a sample, or data set, is a measure of the spread, or dispersion, of the observations. It is the difference between the largest and the smallest observed values of some quantitative characteristic and is very easy to calculate. A great deal of information is ignored when computing the range since only the largest and the smallest data values are considered; the remaining data is ignored.

The range value of a data set is greatly influenced by the presence of just one unusually upper ➔ option 4 or lower ➔ option 1 value in the sample (outlier), in relation to the Likert scale rating. The descriptive statistics used for the analysis of questions 1-32 was the calculation of mean, standard deviation, minimum and maximum percentiles, 25th and 50th median, 75th, standard error of mean and the 95% Confidence Interval of the Difference (lower and upper). The summary of those, with statistical analysis of answers to questions 1-32, is illustrated in table 5a.6, appendix 5a.

Using contingency tables

A contingency table is a tabular representation of categorical data. It is a way of summarising the relationship between variables, each of which can take only a small number of values. A contingency table usually shows frequencies for particular value combinations of two discrete random variables X and Y. Each cell in the table represents a mutually exclusive combination of X-Y values. It is a table of frequencies classified according to the values of the variables in question. When a population is classified, according to two variables, it is said to have been 'cross-classified' or subjected to a two-way classification. Higher classifications are also possible. The word “Contingency”, used in the name of the model, refers to the relationship between the two variables. The chi-squared test is used to test this, i.e. the presentation of nominal or ordinal data from separate populations. A contingency table is used to summarise categorical data. It may be enhanced by including the percentages that fall into each category. The data in the rows of a contingency table is dependent upon what is found in the columns (Tsantas et al 1999).

Analysis of contingency tables is a central branch of categorical data study. This sort of investigation includes hypothesis testing and estimation of model parameters. The categories are the years of experience in project management and position in organisation context (Project Management, Business or other).

Before using advanced analysis methods, trends in data must be identified, anomalies located or essential information (minimum, maximum or mean of a data sample) made available. Charts and a chi-square can also be used for independent results. A scatter graph can be used to show possible relationships between ranked variables. The strength of a relationship can be observed in the closeness of the points to the line. If there is the same value increment level for both variables, this means that there is a positive relationship between them. If one of the variables is decreasing, this indicates a negative relationship. Correlation and regression statistical techniques can be used to assess the strength of this relationship

Calculation of arithmetic mean, median and mode

There are three measures of central tendencies used in this analysis: arithmetic mean, median and mode. The mean is a gauge available for estimating the population mean. It is a measure of location, which is commonly referred to as the average. Its value equally depends on all of the data, which may include outliers. It may not, however, appear to represent the central region for skewed data sets. The median, of ordered data for questions, is used as a measure of central tendency. Median separates a data set into two groups - 50% are smaller than this value and 50% are larger. The median is the value halfway through the ordered data set,

above and below where there exists an equal number of data values. The mode is the most frequently occurring value in a set of discrete data. There can be more than one mode if two or more values are equally common.

Central tendency

The type of measure of central tendency used depends on data and the needed information. On the other hand, outliers convey a significant change and it may be important to cite it in conjunction with the mean, median, or mode. It is always the intention to use good judgment in selecting the appropriate statistics. The analysis of 105 answers to questions 1-32 (which is also performed by using SPSS 16 and XLStat 2008), and the calculations are illustrated in tables 5a.5a and 5a.5b, appendix 5a. The Mean, Median, Mode, Std. Deviation, Variance, Skewness, Std. Error of Skewness, Kurtosis, Std. Error of Kurtosis, Range, Minimum and Maximum, of the 105 samples, can be observed. Moreover, the degree of possessiveness of answers characteristics (regarding bias, variation and deviation) can also be assessed.

Positive bias

Denscombe (2003) stated that a good level of reliability means that the research instrument produces the same data, time after time. From observation of mean and median statistical results, the main tendency in all answers is near the Likert scale level of 3, ("Agree"). The Skewness level seems to be high, but this can be justified by the basic concept of "positive bias" validation of influencing factors. Finally, explanation of statistics used can be found in appendix 8.

Analysis of Likert scale percentage proportion of questionnaire's answers

As stated in the introduction, the first research question to be answered in this study is:

Question 1. Which elements of project planning and implementation do respondents say should be used, and in what sequence should they be used?

The first part of this research question is validated by questions 1-3. From observation of results from question 1, project management (as the main path of strategic project implementation) is applied by portfolio and program management assessment. It had the full commitment of all participants with a high tendency toward "Strongly Agree" (rating 4) with 57.14%.

Question 2 asks whether the organisational operating plans should be linked with the assessment of Portfolio and Program Management processes. The results showed that 48.57% “Strongly Agree” while 51.43% “Agree”.

Question 3 asks if Portfolio and Program Management are the main processes for strategic projects prioritisation. A large percentage agreed with this statement but there are some low percentages (4.76% strongly disagree and 9.52% Disagree), which indicates a small amount doubt that portfolio and program management is actually used as the main processes for strategic projects prioritisation in practice.

Finally, the proportion analysis and summaries of all answers are displayed in appendix 5. A detailed analysis of the assessment of factors proportions, in relation to the strategic projects implementation path, is displayed as well.

Calculation of chi-square test for difference

The Chi-square test can be used in a number of categories (of the variable under investigation) in a contingency table. This is based on a comparison of the observed values in the table with what might be expected if there was no difference between the column distributions. The null hypothesis is that there is no such difference and the test statistic has a x2 distribution with (l-1)(x-1) degrees of freedom. When the chi-square test is used, the probability of the null hypothesis being true is much higher than the 0.05 level, therefore, differences are not significant at that level. The Chi-Squared Goodness of Fit Test is a test for comparing a theoretical distribution, such as Normal, Poisson etc, with the observed data from a sample. The Chi-Squared Test of Association allows the comparison of two attributes in a sample of data in order to determine if there is any relationship between them. The idea behind this test is to compare the observed frequencies with the frequencies that would be expected if the null hypothesis of “no association/statistical independence” were true. By assuming the variables are independent, this test can also predict an expected frequency for each cell in the contingency table. If the value of the test statistic for the chi-squared test of association is too large, it indicates a poor agreement between the observed and expected frequencies and that the null hypothesis of independence /no association is rejected (Tsantas et al 1999). The Chi-square test for differences between the answers to questions 1-32 is presented in table 5a.7, appendix 5a. In this table, it can be observed that the most dominant, minimum, expected cell frequency of most question variables is 35.0. On the other hand, the Asymp. Sig. - 2-sided is the alpha (the probability value) of the test statistic. As can be seen, it is smaller than 0.05 for the answers to questions 3-32, therefore, we can reject the null hypothesis. From this, we can conclude that the differences are statistically significant because

chances are that our results did not occur by chance. Conversely, it is greater than 0.05 for the answers to question 1 and 2. In this case, we should accept the null hypothesis only for them. Appendix 5 shows the distribution of answers regarding those questions. It can be observed that, for both questions, the scores are dichotomized in “Strongly Agree” and “Agree” only. This, in turn, implies the full possessiveness of participants with the concepts asked by those questions.

Cronbach's alpha

Cronbach's alpha (a set of items or variables) measures a single, unidimensional, latent construct. When data has a multidimensional structure, Cronbach's alpha will usually be low. It is not a statistical test but a coefficient of reliability (consistency). It can be written as a function of the number of test items and the average inter-correlation between the items. The formula for the standardized Cronbach's alpha is as follows:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}} \quad (1)$$

N is equal to the number of items, c-bar is the average inter-item covariance among the items and v-bar equals the average variance. From the formula, if the number of items are increased, Cronbach's alpha increases as well. Additionally, if the average inter-item correlation is low, alpha will be low. As the average inter-item correlation increases, Cronbach's alpha increases. It intuitively makes sense that, if the inter-item correlations are high, then there is evidence that the items are measuring the same underlying construct. This really means having a "high" or "good" reliability. It refers to how well the items measure a single, unidimensional, latent construct. The reliability statistics of answers to questions 1-32 is illustrated in table 3.4.

In table 5a.9, appendix 5, the corrected item-total correlation and Cronbach's Alpha is shown (Tsantas et al 1999). The results are helpful for identifying individual items that might be troublesome. The degree of correlation increased and the alpha reliability of scale is better if the respective items are deleted.

Furthermore, in table 3.4, it can be seen that the Cronbach's Alpha equals 0.513, which confirms the results of the reliability analysis. The overall scale of alpha would not usually be regarded with great enthusiasm. The most common "rule of thumb" is that alpha should exceed 0.80. In practice, scales with lower reliabilities are often used.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.513	.493	32

Table 3.4. Reliability Statistics of answers to questions 1- 32 from 105 samples

Dispersion and sample Variance

The data values in a sample are not all the same. This variation between values is called dispersion. When the dispersion is large, the values are widely scattered and when it is small they are tightly clustered. The width of diagrams (dot plots, box plots, stem and leaf plots) is greater for samples with greater dispersion and vice versa. There are several measures of dispersion with the most common being standard deviation. These measures indicate to what degree the individual observations of a data set are dispersed or spread out around their mean.

Sample variance is a measure of the spread of, or dispersion within, a set of sample data. The sample variance is the sum of the squared deviations from their average divided by one less than the number of observations in the data set. For example, for n observations x1, x2, x3, . , xn with sample mean (2), (3) :

$$\bar{x} = \frac{\sum x_i}{n} \quad (2)$$

The sample variance is given by:

$$s^2 = \frac{1}{n-1} \sum (x_i - \bar{x})^2 \quad (3)$$

The population variance of a random variable is a non-negative number, which gives an idea of how widely spread the values of the random variable are likely to be - the larger the variance, the more scattered the observations are, on average. Stating the variance (4) and (5), shows how closely concentrated round the expected value the distribution is - it is a measure of the spread of a distribution around its average value (Tsantas et al 1999).

Variance is symbolised by **V(X) or Var(X) or** σ^2 (4)

The variance of the random variable X is defined as:

$$V(X) = \sigma^2 = E\left(X - E(X)\right)^2 = E(X^2) - E(X)^2 \quad (5)$$

where E(X) is the expected value of the random variable X.

The variance and standard deviation of a random variable are always non-negative. The larger the variance, the further those individual values of the random variable (observations) tends to be from the mean, on average. The smaller the variance, the closer that individual values of the random variable (observations), tend to be to the mean, on average (Tsantas et al 1999). Taking the square root of the variance gives the standard deviation, i.e. (6):

$$\sqrt{V(X)} = \sqrt{\sigma^2} = \sigma = s \quad (6)$$

(The summary of items Statistics of range and variance of the Q1- Q32 is displayed in table 5a.8, appendix 5a).

Statistical analysis of influencing factors assessment

Question 2 in the survey is as follows:

Question 2. By assessing the six main factors found in qualitative research, what do respondents think is the level of their importance in influencing the effectiveness, or otherwise, of the overall project management process?

The percentage proportions of factors 1-29 are presented in table 5a.10 and figure 3.4. These are the factors' assessment in each project management context (PMC1 – PMC5, as coded in table 5a.1, appendix 5a).

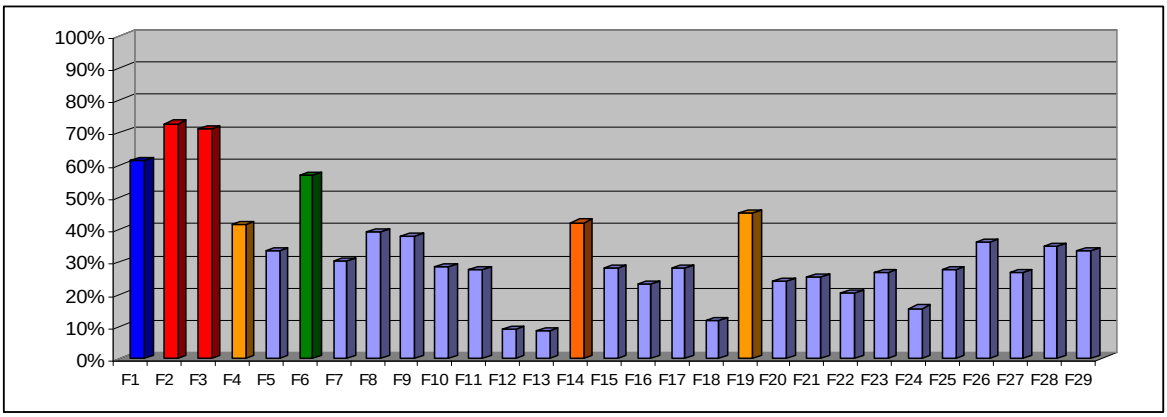


Figure 3.4. Average of influencing factors importance of effect in the context of project management.

According to findings, after the calculation of average scores (F1-F29), the most important factors found influencing the project management context need to be distinguished and sifted. They are sorted by the highest first and are as follows: Upper management consensus and commitment, organisational culture, projects prioritisation, human factor, stakeholders, organisational communication and organisational politics. These factors are quite different from those found by qualitative research (illustrated in table 5.4). The only factors they have in common are the human factor and organisational communication.

1	Human factor
2	Organisational quality
3	Information technology support
4	Organisational communication
5	Project management strategy
6	Organisational project management maturity

Table 3.5 The most important factors found by qualitative research

Assessment of influencing factors in relation to Likert scale rating answers (Q1 – Q32) as overall average scores

Very high or low scores means that an area is either doing really well or really poorly, or that the question is phrased poorly. The answers to questions 1-32 and the average scores are presented in table 5a.12, appendix 5a. These scores are calculated by the average percentage of positive answers ("Agree" and "Strongly agree") from the sample (105 answers) and according to subtraction between positive and negative answers ("Strongly disagree" and "Disagree") rates (1 -2 are perceived as negative [-], and 3 – 4 perceived as positive [+]). This analysis is performed in relation to the assessment of the Likert scale and the average positive scores. The negative answers are illustrated with the sign [-].

Assessment of the importance of factors and proportions in relation to the project management implementation paths' categories

In the question "Which of the following factors are critical and most important for the implementation of strategic projects", the average percentage proportions of answers are illustrated in table 5a.13, appendix 5a and graphically presented in figure 3.5.

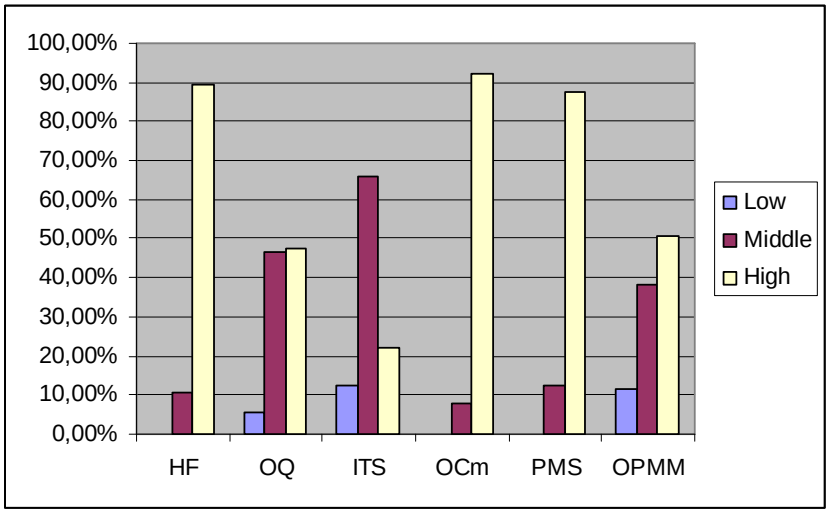


Figure 3.5. Percentage proportions of influence of most important factors

According to the results from the statistical analysis in figure 3.5, the influential factor "Organisational Communication" is seen to have a great influence. This is nearly the same with the "Human Factor" and "Project Management Strategy". "Organisational Project Management Maturity" and "Organisational Quality" factors were found in the second level of percentage proportion. The factor of "Information Technology Support" has the lowest value. Table 5a.13a, appendix 5a, shows the summary statistics and table 5a.13b presents Cronbach's Alpha reliability statistics of the six most important factors. In addition, Table 5a.13c. displays the Item-Total Statistics of the six most important factors and, finally, table 5a.13d shows the "Scale Statistics" of the same factors.

Assessment of the importance of factors and proportions of Likert scale scores by using contingency table statistical analysis

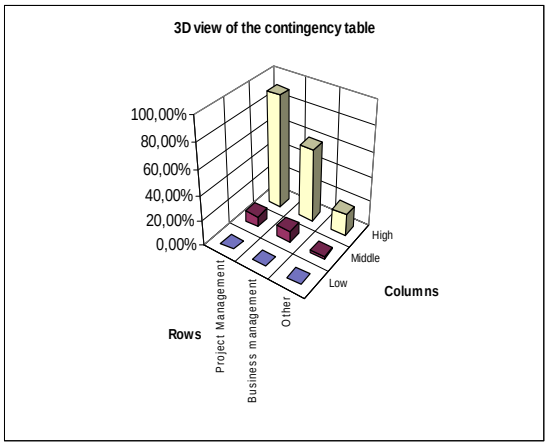
To be more analytical, the detailed analysis of contingency table statistics of the six most important factors in relation to the position in organisation is illustrated in appendix 14. In tables 16.1 - 16.17 the tests performed to reveal the independence between the rows and the columns (Chi-square) and their frequencies are shown.

Moreover, the test of independence between the rows and the columns (Chi-square) is performed for each factor. The calculation is performed by using XLStat 2008 for the Chi-

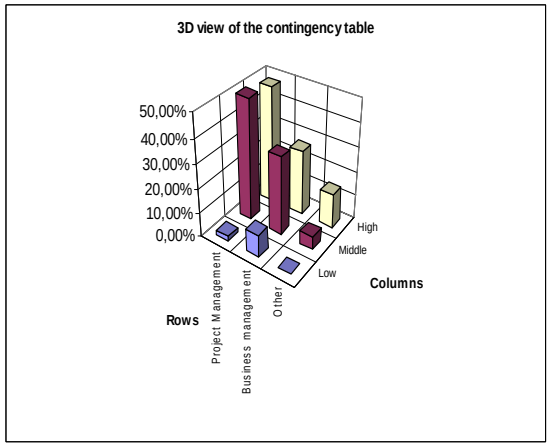
square (Observed value), Chi-square (Critical value), DF, p-value and Alpha. The test of frequencies is performed for each of the six most important factors, in relation to the position in organisation. The positions in organisation are project Management, Business Management and Other. The list of combinations are frequency and proportion. The assessment ratings calculated are low, middle and high. Finally, the summary statistics for each of the six most important factors in relation to position in organisation categories is performed. This is based on the rating scale of low, middle, high and total by using the following options - chi-square by cell, significance by cell, inertia by cell, observed frequencies, theoretical frequencies, proportions/row, proportions/column and proportions/total.

Figure 3.6 shows the relative importance respondents gave to factors by using 3D graphs. These are the proportions of the six most important factors in relation to the participants' positions in their organisations. In that presentations, it can be observed that a large percent of those working in "Business Management" have the opinion that the "Organisational Project Management Maturity" factor has the lowest influence of all. The same can be said of "Information Technology Support" and "Organisational Quality", but as second lowest.

Human Factor

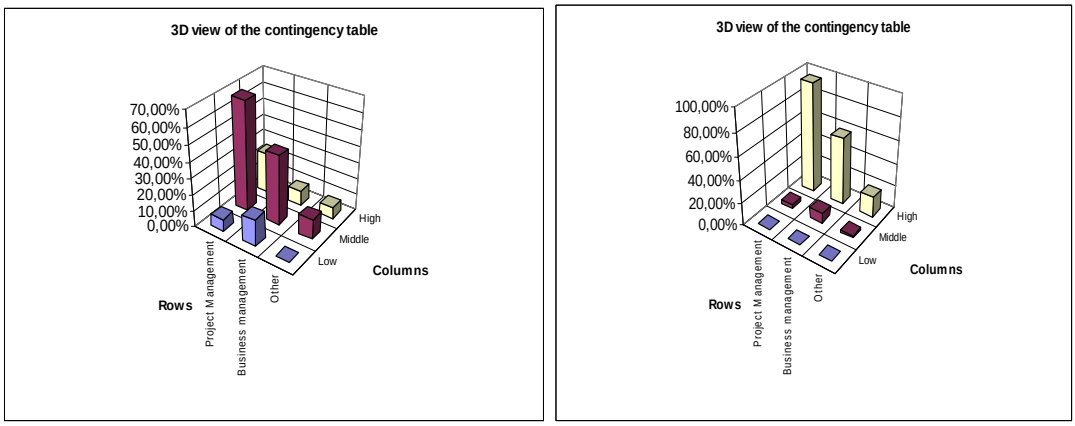


Organisational Quality



Information Technology Support

Organisational Communication



Project Management Strategy ***Organisational Project Management Maturity***

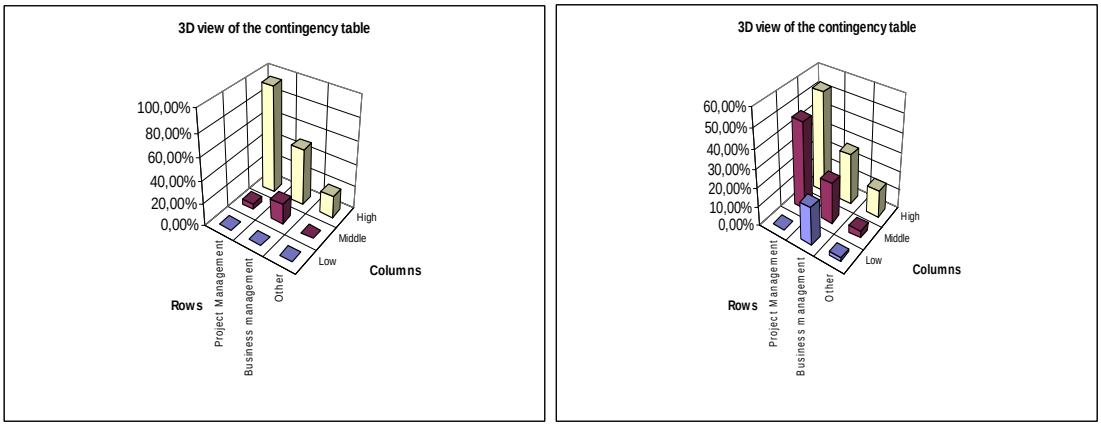


Figure 3.6. Presentation with 3D views of contingency table of position in organisation and most important factors assessment with Likert scale scores

Respondents' views according to their age, experience or other demographic features

The research question relating to this topic is as follows:

Question 4. Do respondents' views on previous questions vary according to their age, experience or other demographic features?

This analysis is the calculation of the percentage proportions of years of experience categories and assessment of influencing factors. The "years of experience" participants' categories in percentage proportions of 105 survey samples are illustrated in table 3.32.

Experience	Samples	Proportions
1-5 Years	13	12,38%

6-15 Years	18	17,14%
16-25 Years	44	41,90%
> 25 Years	30	28,57%
Total	105	100,00%

Table 3.6. Years of experience categories and percentage proportions.

The percentage proportions of answers from the assessment of influencing factors, in association to the total percentage of years of experience in project management categories, is presented in table 5a.14, appendix 5a. That means, for example, that F1 (coded influence factor) is assessed as having 1.31% of importance to the 12.38% of 1-5 years experience category. This is illustrated in table 3.6.

In figure 3.7, the dispersion of percentage choices of influencing factors1-29, by each year of experience category, can be seen. The most important factors to those with 16-25 years of experience in project management were found to be the "Support from Information Technology", "Project team members work load" and "Dependences between strategic or other projects". On the other hand, to those with more than 25 years of experience, the most important factors seem to be the "Ethical factors", "Project management process", "Stakeholders", "Project Earned Value management" and "Project management strategy".

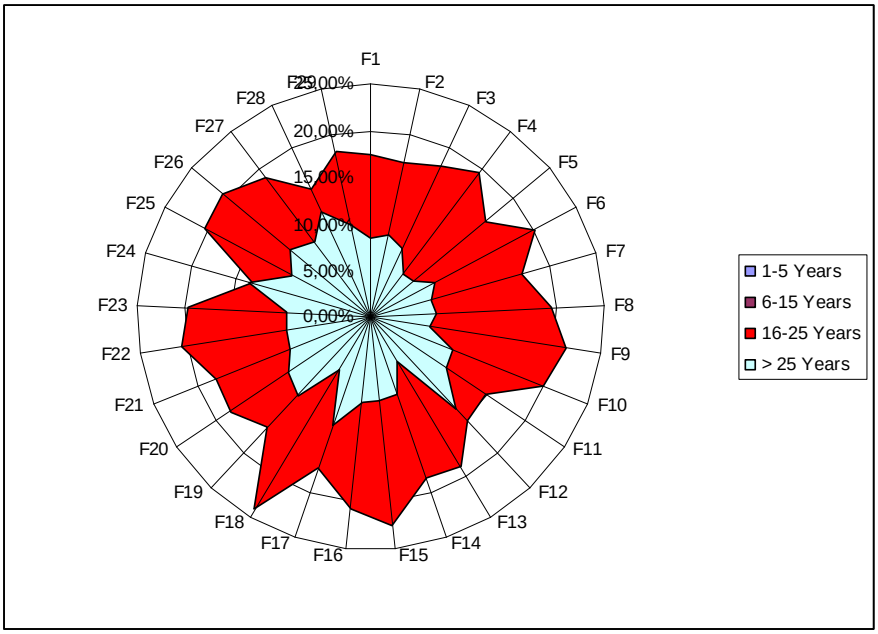


Figure 3.7. Percentage proportions of answers form the assessment of influencing factors 1-29 in relation to the total percentage of years of experience in project management categories.

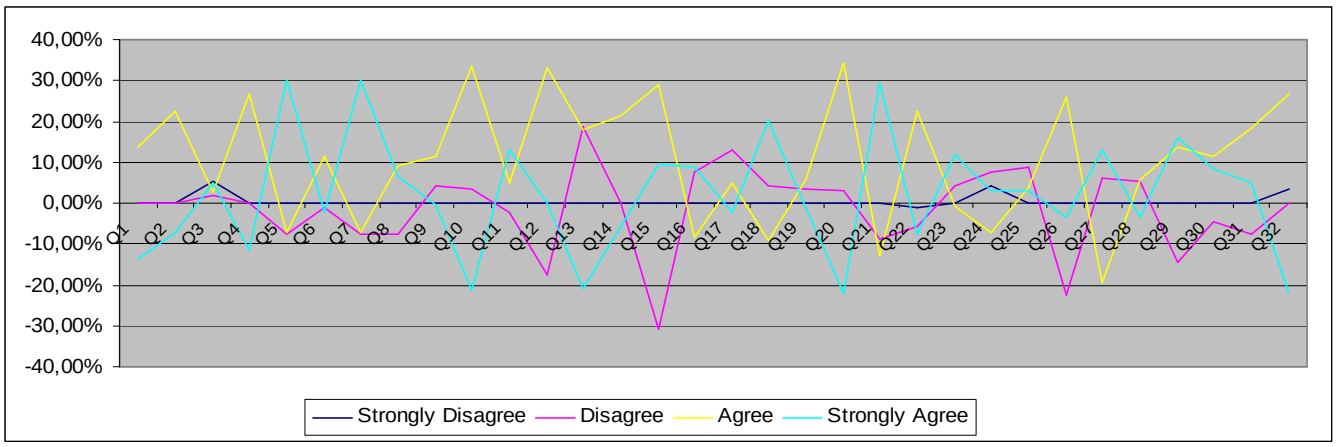
The percentages of answers from participants with project management experience of less than 5 years are presented in table 5a.29a, appendix 5a. The percentages of answers of those with 5 years are displayed in table 5a.29b. Finally, the proportions of percentage differences in the answers to questions 1-32, between participants with more than 5 years experience and 1-5 years, are illustrated in table 5a.29c.

The percentage difference between the answers from those more than 5 years and those with 1-5 years is calculated by the following formula (7) :

Proportion of percentage difference = (more than >5 years [%]) – (1-5 years [%]) (7)

This means that each answer is calculated for the difference of positive or negative percentage of agreement on each of the Likert scale options.

The positive percentage difference, presented in figure 3.8, means that the category of more than 5 years has more responses in the specific question and option of the Likert scale. The opposite would be true if the result was in the negative quadrant. This would mean that the category of 1-5 years has more responses in the specific question and option of the Likert scale. As can be seen, most of them are in the positive quadrant and there are more responses of “Agree” from the 1-5 years category. “Strongly Agree” and “Disagree” options seem to have more variation in many questions. Finally, the option “Strongly Disagree” has a smaller variation (in small percentages, in some answers) in the 1-5 years category.



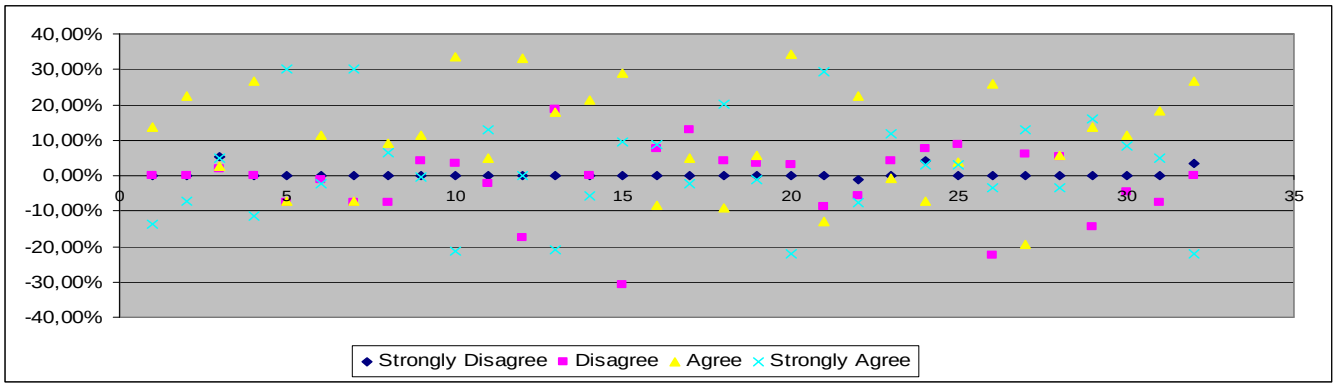


Figure 3.8. Graphical representation of percentages differences between answers from participants with project management experience of more than 5 years experience and less than 5 years.

Percentage proportions of position in the organisation categories and influencing factors assessment

The participants' position in organisation categories, in percentage proportions of 105 survey samples, are illustrated in table 3.7.

Position in organisation	Samples	Proportions
1. Project Management	56	53,33%
2. Business Management	38	36,19%
3. Other	11	10,48%
Total	105	100,00%

Table 3.7. Position in organisation categories and percentage proportions.

The percentage proportions of influencing factors, in relation to the total percentage of position in organisation categories, are presented in table 5a.15, appendix 5a. That means, for example, that the F1 (coded influence factor) is assessed as having 28.49% importance (53.33% of the total) in option 1, Project Management position category, in table 3.7.

In figure 3.9, however, it can be observed that those participants working in Project Management have chosen "Ethical factors" and "Project Earned Value management" as the most important. On the other hand, those working in Business Management have chosen "Operational processes support" and "Dependences between strategic or other projects" as the most important. There are totally different opinions for the same factors.

In addition, according to the cross tabulation performed (presented in appendix 12), the statistical analysis of the position in organisation and the answers of Likert scale scores (in questions 1-32, found that a greater percent of those working in Project Management

positions “Agree” with the links (which asked for validation) in questions 1-3. In comparison, those working in Business Management positions “Strongly disagree” with the concept of question 3 - “The Portfolio and Program Management are the main processes for strategic projects prioritisation”.

Finally, appendix 14 shows a summary of the statistics of most important influencing factors in association with position in organisation. The percentages of influencing factors assessment, per project management context process, are also illustrated in table 5a.10, appendix 5a and 15. The results of this analysis will be used accordingly for model re-construction in the next section.

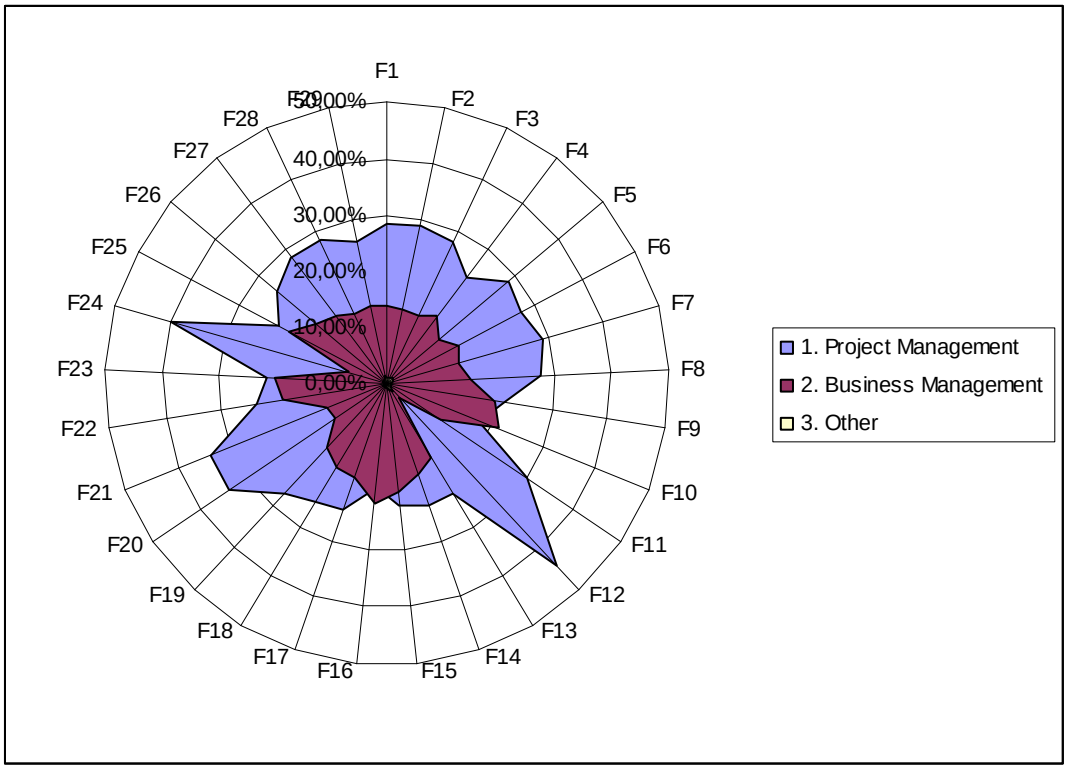


Figure 3.9. Percentage proportions of assessment of influence factors 1-29 in relation to the total percentage of years of position in organisation categories

Percentage proportions of the average positive scores from questions 4-32 in relation to the assessment of influencing factors 1-29.

Table 5a.16, appendix 5a, shows the analysis applied to the comparison of average percentage of participants’ positive answers (“Agree” and “Strongly Agree”) in questions 4-32 in relation to the assessment of influencing factors 1-29 in the context of project management. This is graphically displayed in figure 3.10 as well

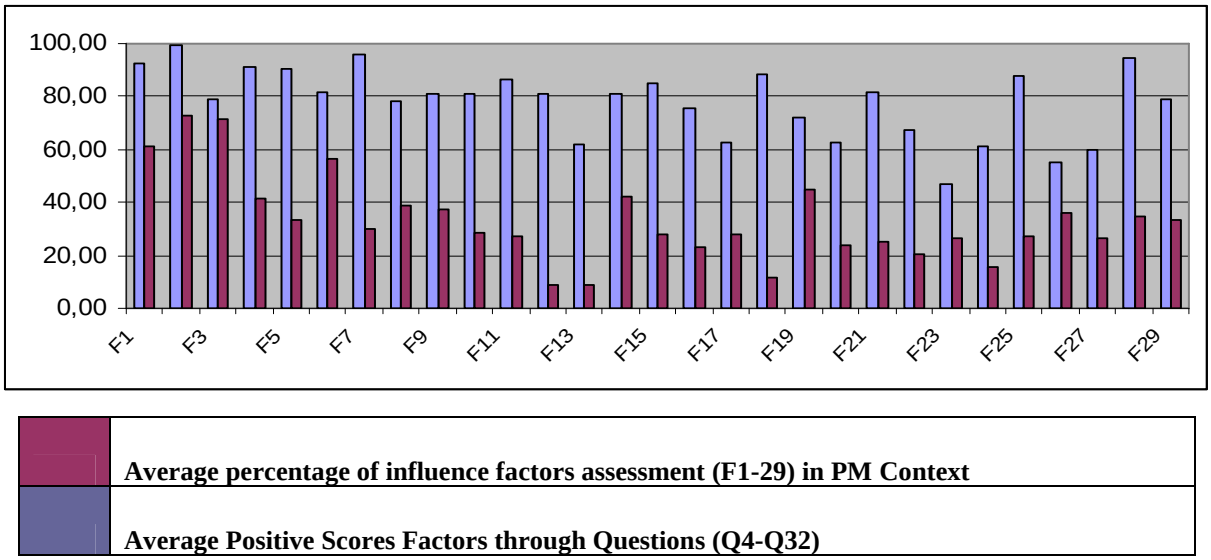


Figure 3.10. Comparison of average percentage of positive answers in questions Q4-Q32 in reflection with influence factors (F1-F29), assessment in PM context.

In the following table, the difference between the two source lists of the 29 factors can be seen.

Variable	Factors	Minimum	Maximum	Mean	Std. deviation
Aver. F-Q (4-32)	29	46,670	99,050	77,964	13,301
Aver . F1-F29	29	8,570	72,760	33,248	16,188

Table 3.8. Summary statistics of positive answers in questions Q4-Q32 in reflection with influence factors (F1-F29), assessment in PM context.

Using cross tabulation

Cross tabulation is about taking two variables and comparing the results of one variable against the other variable. A cross-tabulation gives a basic picture of how two variables inter-relate and helps when looking for patterns of interaction.

The chi-square test has many roles in statistics but its basic function is in cross-tabulation, or contingency, tables. In this case, there are the Observed values (O) and Expected values (E), where the expected values assume that there is no structure to the cells outside what would be expected from a systematic distribution (based on the margin totals). Chi-square asks the question “Do the observed values deviate significantly from these expected values?”. This can

be discovered by calculating the chi-square component for each cell. Cross tabulation is calculated through the following combinations of question 1-32 with position in organisation and is presented in appendix 12. This is discussed further in the conclusion based on the research question "*Do respondents' views on previous questions vary according to their age, experience or other demographic features?***"**

Using box-plots

There is a validation of the level of the positive tendency of respondents' answers which reflect the literature review and qualitative research results. The following statistical analysis box-plots, histograms and Standard Deviations and Frequency Distributions are used to analyze and present the average positive percentage of factors.

A box-plot, as it is often called, is a way of summarising a set of data measured on an interval scale. It is often used in exploratory data analysis. It is a type of graph which is used to show the shape of the distribution, its central value, and its variability. The picture produced consists of the most extreme values in the data set (maximum and minimum values), the lower and upper quartiles, and the median. A box-plot is especially helpful for indicating whether a distribution is skewed and whether there are any unusual observations (outliers) in the data set. Box-plots are also useful when large numbers of observations are involved and when two or more data sets are being compared. They also show the median, interquartile range and cases of individual variables (Easton et al 2008). The box-plots for the average positive percentage of factors assessed from answers to questions 4-32, and the average percentage of influencing factors assessment (F1-F29 in total context of project management), are illustrated in figure 3.16. The left box-plot shows that most of the answers are positive, fluctuating between 70% and 90%. On the other hand, the box-plot on the right shows that participants choice, of which 29 factors influence each of the project management context phases, seems to have a lower average percentage, 27%-40%, in relation to the assessment of answers to questions 4-32 (which are in the left box-plot).

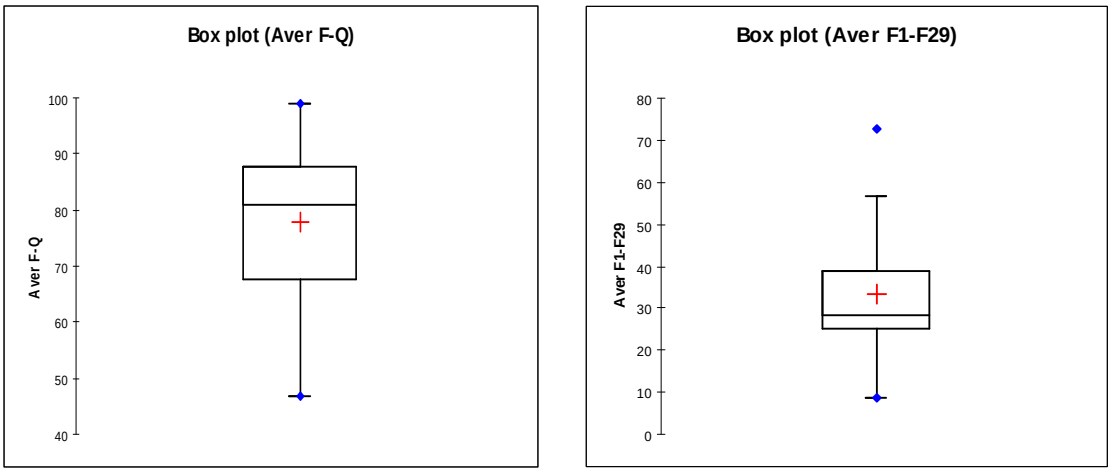


Figure 3.14. Box-plots of the average positive percentage of factors assessment from answers to survey questions 4-32 and average percentage of influencing factors assessment (F1-F29)

The importance of influencing factors sorted by the most positive average score (%)

The most important factors revealed from the average, descending, sorted scores of all influencing factors are displayed in table 5a.20, appendix 5a. According to the results from the calculation of total average percentage of positive scores for each of the influencing factors, the first six most dominant are revealed. They are, first, "Upper management consensus and commitment", secondly "Projects Prioritisation", third is "Organisational culture", fourth is "Human Factor", fifth "Organisational politics", and the final one is "Project management strategy".

Histograms

For continuous variables, histograms are used to represent the frequency of occurrence. A histogram is a way of summarising data that is measured on an interval scale (either discrete or continuous). It is often used in exploratory data analysis in order to illustrate the major features of distribution of the data in a convenient form. It divides the range of possible values in a data set into classes or groups. For each group, a rectangle is constructed with a base length equal to the range of values in that specific group, and an area proportional to the number of observations falling into that group. This means that the rectangles can be of non-uniform height. The histogram is only appropriate for variables whose values are numerical and measured on an interval scale. It is generally used when dealing with large data sets (>100 observations), when stem and leaf plots become tedious to construct. A histogram can also help detect any unusual observations (outliers), or any gaps in the data set.

The histogram of distribution of average percentage positive scores is displayed in figure 3.15. This presents both assessments of answers to questions 4-32 and choices of influencing factors 1-29. In the graph, it can be seen that the greatest density of percentages is between 35% and 70%.

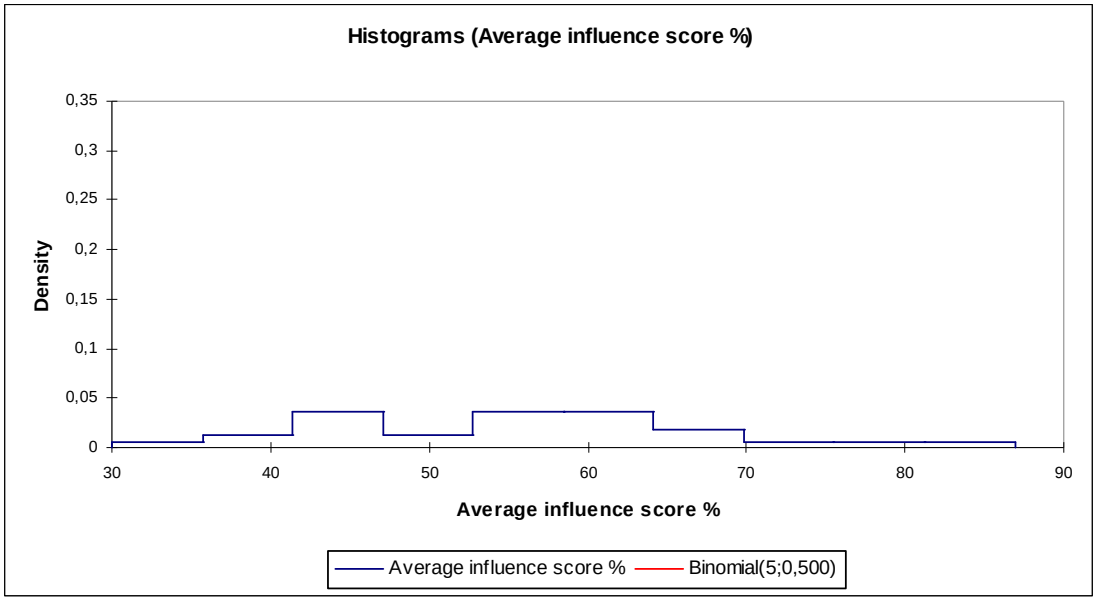


Figure 3.15. Histogram of average percentage scores of influencing factors assessment (Q4-Q32 and F1-F29).

Standard Deviations and Frequency Distributions

A low standard deviation means participants generally had a higher level of agreement in how they respond. Higher standard deviations mean less agreement. The frequency distribution will help to get a better view of status. One pattern, in particular, to look for is a bi-modal distribution where there are clusters of responses on both the high and low ends of the response spectrum. These items might show up as having an overall average score, thus, looking unremarkable from that perspective, but the bi-modal distribution might mean that there are two different demographic groups (Project Management and Business Management) that had very different responses. This is performed by looking at the results for the different demographic subgroups, especially focusing on the items where interesting views are in the frequency distributions. In addition, a more advanced, statistical analysis can also be performed. In particular, a correlation matrix often reveals where different questions in a survey have relationships to one another. A frequency distribution is said to be skewed when its mean and median are different. The kurtosis of a frequency distribution is the concentration of scores at the mean, or how peaked the distribution appears, if depicted graphically in a histogram. The tables of frequencies of distribution in answers to questions 1-32 are illustrated in Appendix 9.

This is the description of how the data values are dispersed around the central tendency. Values differ from the mean by using standard deviation, which is a measure of the spread or dispersion of a set of data. It is calculated by taking the square root of the variance and is symbolised by s.d., or s (8). In other words, by using the following formula:

$$\sqrt{V(X)} = \sqrt{\sigma^2} = s \quad (8)$$

The more widely the values are spread out, the larger the standard deviation. In research, it is important to look at the extent to which the data values of a variable are spread around their mean. This needs to be know in order to assess the influences as a typical value for the distribution. If the data is close to the mean, it indicates that the mean is more typical. If the data varies widely, this signifies that the mean is not so typical.

Frequency Table

A frequency table is a way to summarise a set of data. It is a record of how often each value (or set of values), of the variable in question, occurs. It may be enhanced by the addition of percentages that fall into each category. It is used to summarise categorical, nominal, and ordinal data. It may also be used to summarise continuous data, once the data set has been divided up into sensible groups. When there is more than one categorical variable in a data set, a frequency table is sometimes called a contingency table because the figures found in the rows are dependent upon those found in the columns (see appendices 9 and 10 for an example).

Expected Frequencies

In a contingency table, the expected frequencies are the frequencies that would be predicted (or expected) in each cell of the table. This is if the row and column totals are known, and if it is assumed that the variables, under comparison, are independent.

Observed Frequencies

The contingency table in this study shows that the observed frequencies, from our random sample, are the frequencies actually obtained in each cell of the table. When conducting a chi-squared test, the term “observed frequencies” is used to describe the actual data in the contingency table. They are compared with the expected frequencies and differences between them suggest that the model expressed by the expected frequencies does not describe the data well. The frequencies of average percentage scores of influencing factors assessment (Q4-Q32 and F1-F29) are presented in table 5a.21, appendix 5a, verifying the previous results. They are displayed in histograms and box-plots presentations as well.

Percentage proportions of implementation path-followed variable

The percentage results of participants' answer to the following question are presented in table 3.10.

Question 1a. Do respondents think that the sequence of elements of project management that should be used and, are in fact used?

From the percentages displayed in table 3.10, it can be observed that the most dominant path is the "portfolio and project management". The other percentages are between "Direct through Project Management" and "Through Program and project management". A very small percentage of participants preferred "Through Portfolio to program and project management " which is the most integrated path in project management context. Finally, a small percentage preferred "By using other methodology" (see the respective graph in figure 3.16).

Codes	Implementation path used	%
S1	Through Portfolio to program and project management	**12,38%**
S2	Through Program and project management	**18,10%**
S3	Through Portfolio and project management	**33,33%**
S4	Direct through Project Management	**28,57%**
S5	By using other methodology	**7,62%**

Table 3.10. Variable percentage proportions of implementation path used

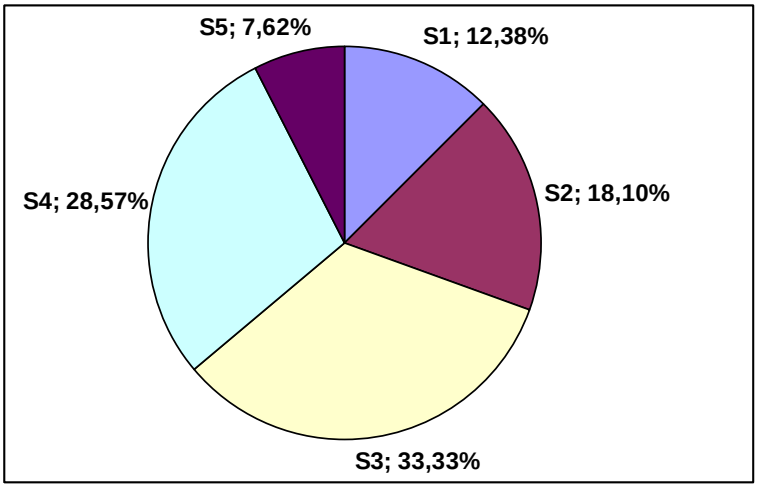


Figure 3.16. Variable percentage proportions of implementation path used

Analysis of answers to questions 1-3 in relation to paths used categories of choices (S1-S5) for the implementation of a strategic project

The respective questions 1-3, regarding the implementation path of a business strategic project, the links of operating plans and its prioritisation, are as follows in the survey:

Q1. The implementation of a strategic project should be through portfolio, program and project management processes.
Q2. Organisational operating plans should be linked with Portfolio and Program Management processes.
Q3. Portfolio and Program Management are the main processes for strategic projects prioritisation.

On this occasion, the answers regarding the implementation path used in their organisations, in relation to their answers on questions 1, 2 and 3, are illustrated in figures 3.17, 3.18, 3.19.3.20.and 3.21. The statistical analysis of percentages in each category are displayed in tables S1 :5a.22a, S2: 5a.22b, S3: 5a.22c, S4: 5a.22d and S5: 5a.22e, all in appendix 5a.

Analysis of implementation paths used (S1- S5)

S1. Through Portfolio to program and project management

As shown in figure 3.17, most participants, in the S1 category, answered positively that they "Strongly agree" and "Agree" with the concept in questions 1–3. Nevertheless, there are some small percentages of disagreement, but only in question 3, which means those participants believe that "Portfolio and Program Management" should not be the main process for strategic projects prioritisation.

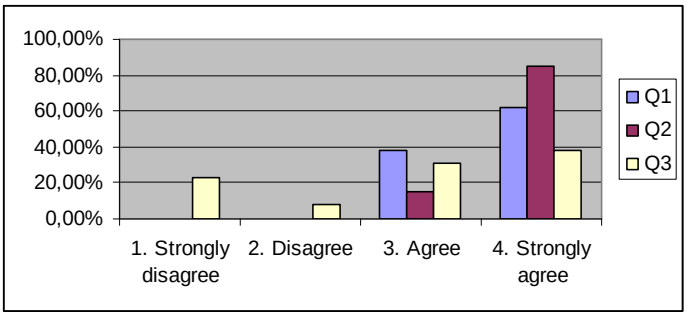


Figure 3.17. Percentage proportions of assessment scores of implementation path used (S1) through Portfolio to program and project management in relation to answers to questions 1-3.

S2. Through Program and project management

Figure 3.18 shows that most of the participants, in the S2 category, answered positively that they “Agree” while a smaller percentage “Strongly agree” with the concept of questions 1-3. Even though, there is a small percentage of disagreement (only “Disagree”), but only in question 3, which means that those participants also believe that “Portfolio and Program Management” should not be the main processes for strategic projects prioritisation.

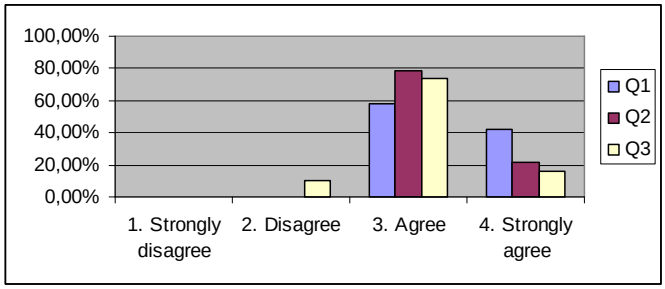


Figure 3.18. Percentage proportions of assessment scores of implementation path used (S2) through program and project management in association with answers to questions 1-3.

S3. Through Portfolio and project management

Figure 3.19 shows that most of the participants, in the S3 category, answered positively that they “Strongly agree” and “Agree” with the concepts in questions 1–3. In contrast, there is a very small percentage of strong disagreement and plain, old disagreement, but, again only in question 3. This means that those participants also believe that “Portfolio and Program Management” should not be the main processes for strategic projects prioritisation.

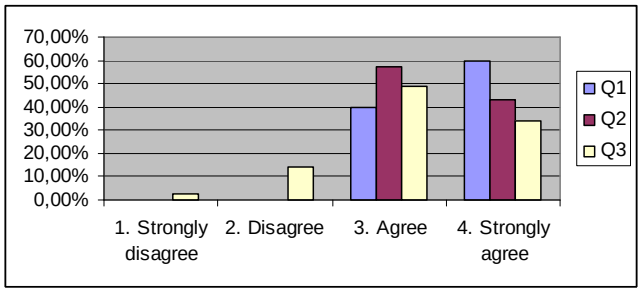


Figure 3.19. Percentage proportions of assessment scores of implementation path used (S3) through portfolio and project management in association with answers to questions 1-3.

S4. Direct through Project Management

Similarly, in figure 3.20, it can be observed that most participants, in the S4 category, answered positively that they “Strongly agree”. In this case, the percentage of those who

"Agree" is nearly the same as those who "Agree" with the concept of questions 1-3. There can, however, be observed a very low percentage of "Strongly disagree" and "Disagree" in question 3. This means that the S4 category of participants also believe that "Portfolio and Program Management" should not be the main processes for strategic projects prioritisation.

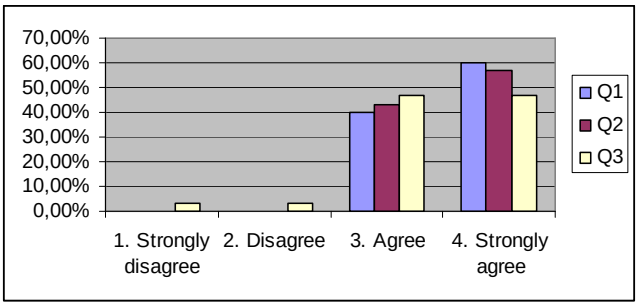


Figure 3.20. Percentage proportions of assessment scores of implementation path used (S4) direct through Project Management in association with answers to questions 1-3.

S5. Using other methodology

Finally, in figure 3.21, it is observed that most participants, in the S5 category, answered positively that they "Strongly agree". In this case, once again, the percentage of those who "Agree" is nearly the same as those who "Agree" with the concept of questions 1-3. Again, there is also a small percentage that "Disagree" although it is only in question 3. This means that those participants also believe that "Portfolio and Program Management" should not be the main processes for strategic projects prioritisation.

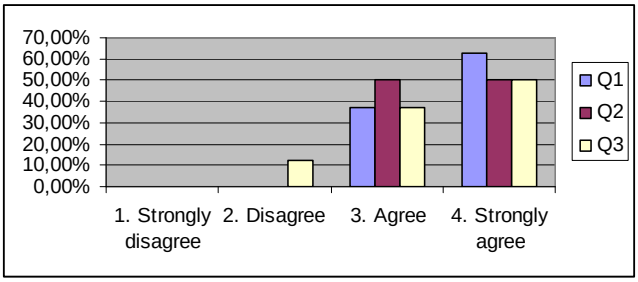


Figure 3.21. Percentage proportions of assessment scores of implementation path (S5) by using other methodology in association with answers to questions 1-3..

The conclusion here, based on the previous, graphical presentation and statistical analysis, is that, in all categories (S1- S5), the disagreement found between the responses is with question 3. This means that "Portfolio and Program Management" should not be the main path used for strategic projects prioritisation. Finally, only those in category S1 (the implementation

path used is through Portfolio to program and project management") had a larger percentage of "Strongly disagree" with the concept of question 3.

A different view, using cross tabulation of questions 1-32 with S1-S5, is illustrated in appendix 13. This is further analysed, in the conclusion of this document, based on the research question: "*1a. Do respondents think that the sequence of elements of project management that should be used, are in fact used?***"**

Percentage proportions of influencing factors 1- 29 assessment per implementation path used (S1- S5) and per project management context (PMC1- PMC5)

In this case, the research question regarding the main factors influencing the elements (PMC1- PMC5) of "project management context" is as follows:

Question 3. What do respondents think are the main factors that influence the component elements of project management context?

Table 5a.23 and 5a.24, appendix 5a, illustrates the full analysis of percentage proportions of influencing factors 1- 29 assessment per implementation path used (S1- S5) and per project management context (PMC1- PMC5).

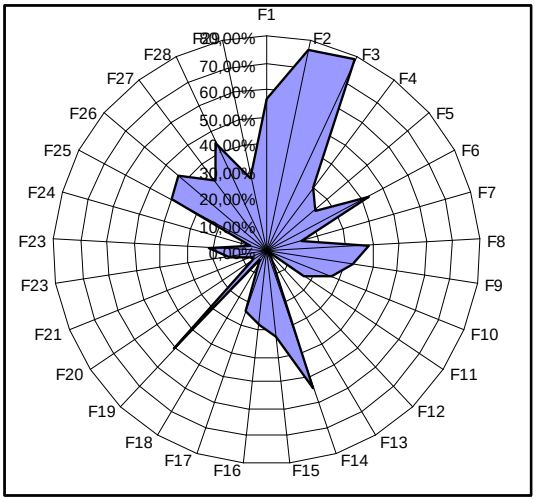
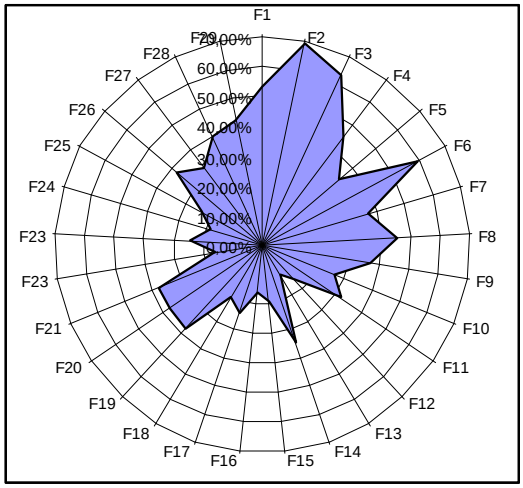
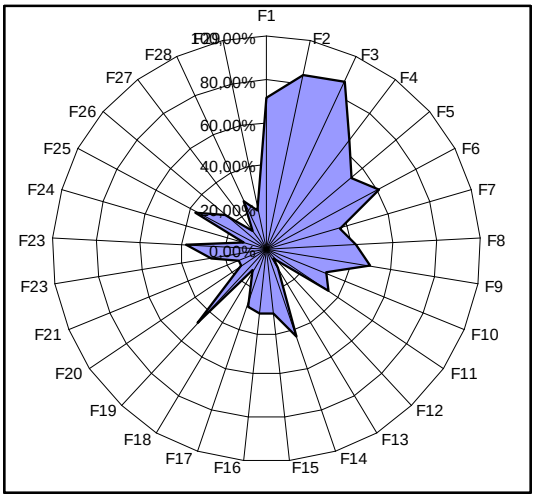
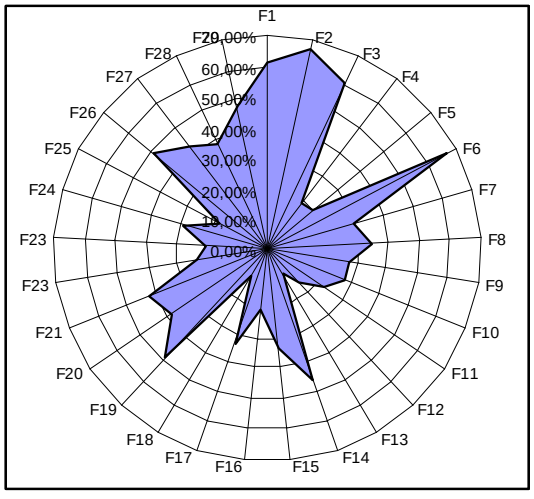
Simultaneously, the analysis of total average percentage proportions of influencing factors 1-29 assessment per implementation path used (S1- S5) categories is illustrated in table 5a.25, appendix 5a. Figure 3.22 shows the graphical distribution of participants' choices of influencing factors influence from each of the categories 1-5.

As a result, it can be observed that, in the S1 category, the most important factors influencing the project management context are found to be the "Upper management consensus and commitment", "Organisational culture" and "Organisational communication". In the S2 category, the most important factors influencing the project management context are found to be the "Upper management consensus and commitment", "Organisational culture" and "Human Factor". In the S3 category, the most important factors influencing the project management context are found to be the "Organisational culture" , "Upper management consensus and commitment" and "Projects Prioritisation".

In contrast, in the S4 category, the most important factors influencing the project management context are found to be the "Human Factor", "Organisational culture", "Upper management

consensus and commitment" and "Projects Prioritisation". Finally, in the S5 category, the most important factors influencing the project management context are found to be the "Organisational culture", "Upper management consensus and commitment" and "Projects Prioritisation".

To conclude, according to the total, average percentage scores, the most important factors influencing the project management context are found to be the "Upper management consensus and commitment", "Organisational culture" and "Projects Prioritisation".

S1.Through Portfolio to program and project management	**S2.Through Program and project management**
	
S3.Through Portfolio and project management	**S4.Direct through Project Management**
	
S5.By using other methodology	**Total average scores**

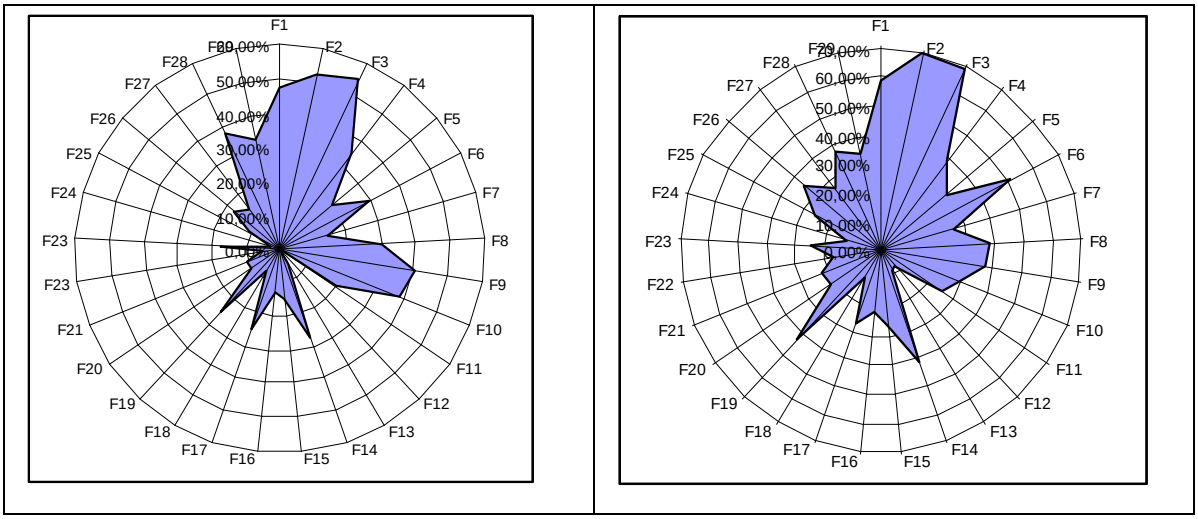


Figure 3.22. Analysis of average percentage proportions of influencing factors (F1- F29) assessment per implementation path used (S1- S5)

The arrangement of influencing factors, according to the highest percentage proportion score per implementation path (S1-S5), is illustrated in table 5a.26, appendix 5a. This is also shown, graphically, in figure 3.23. It can be observed, however, that the factors of F2-"Upper management consensus and commitment", F3-"Organisational culture" and F1-"Projects Prioritisation" have the highest percentage scores from all other categories (S1-S5). Finally, it can be seen that all categories have nearly the same frequency of influencing factors choices.

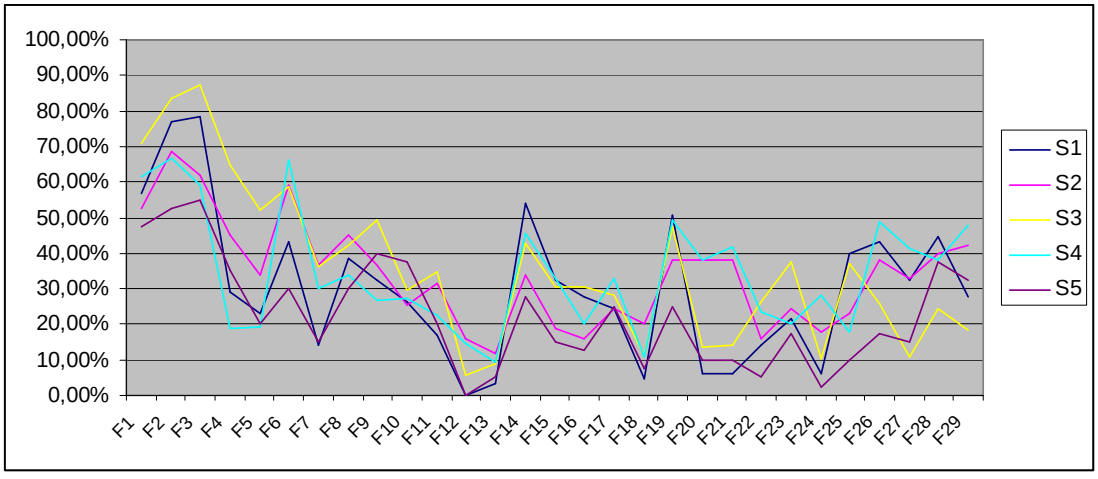


Figure 3.23. Presentation of influencing factors (F1-F29) sorted according to the most higher percentage proportion score per implementation path (S1-S5)

Summary statistics of average percentage proportions of influencing factors 1-29

Table 5a.27, appendix 5a, displays the summary statistics of average percentage proportions of influencing factors 1-29 assessment per implementation path used (S1- S5). The

descriptive statistics of influencing factors 1-29 per S1-S5 implementation path categories are displayed in table 5a.28, appendix 5a. The Box-plots of influencing factors 1-29 per S1-S5 implementation path categories are displayed in figure 3.24. Furthermore, the shape of the distribution, its central value, and variability of the limits of percentages of choices can be observed. These consist of the most extreme values in all categories' data sets (maximum and minimum values), the lower and upper quartiles, and the median. Besides that, the distribution seems to be near the same range in all categories. By observation of category S2, it can be seen that it has nearly the same distribution as category S3, and category S1 as the S4. Only category S5 has a range different (larger) than the others.

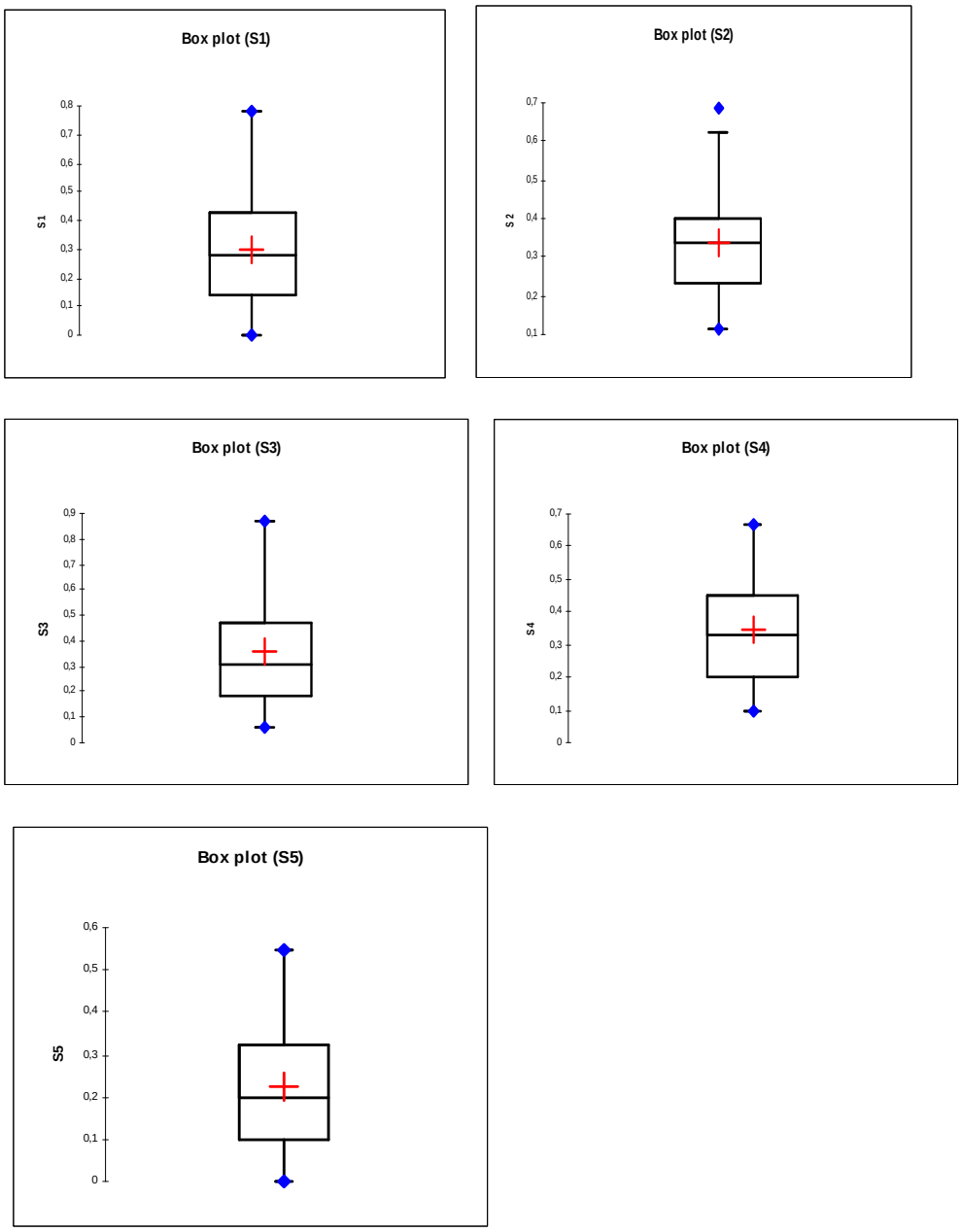


Figure 3.24. Box-plots of influencing factors 1-29 per S1-S5 implementation path categories.

Clarification of influencing factors

The factors listed in appendix 4 come from literature review and qualitative research. They were also assessed, confirmed, restructured and amended via qualitative research analysis. They were carefully structured and labeled in order to cover all possible sub-factors and cases of influence on "project management context". In this document, these factors are re-assessed, re-structured and coded so they can be used in statistical analysis. As previously mentioned, these influencing factors can comprehend other sub-factors. An example of this feature is the product specifications, in a strategic project, for a new product in a financial organisation. This can be a sub-factor of "Project complexity" as this shapes and determines the complexity from one point of view. From another point of view, wrong specifications have to do with the "Risk management" factor for determination of such a risk.

Analysis of Qualitative, additional information (Open Ended; Non-Numeric Data)

An important factor that was referred to by some of the participants was the organisational structure. According to analysis of the "additional comments", it was suggested that a different strategic approach for organisations, that implement a hierarchy, be applied as opposed to a flatter organisational structure. Newly developed structures, such as the decentralised, team-based structures or the network-based structures, are important shaping sub-factors for an organisations' strategy. The latter can also be embedded or used as a sub-factor of the "Organisational complexity" factor.

Another important factor suggested was the financial status of the organisation. This can also be embedded or used as sub-factor of "Project cost" or "Projects Prioritisation (by Portfolio Management)" factors. This also has to do with determining the limits of the available budget of a project and the organisational capability to implement strategic projects. But also Financial status would also influence a strategic project during the implementation, for example, if there is a situation of a possible economic crisis, coming from inside or outside of the organisational environment. The external or internal conditions could influence the financial status of the organisation and, in turn, influence the projects progress, to stop with its "ruthless execution" (i.e. rejection or project failure).

The conclusions of current statistical analysis are presented in the next chapter. The most dominant paths are presented according to a cross tabulation assessment of statistical research results. Subsequently, the final list of the six most important factors of influence are presented, drawn from the assessment of all related lists based on previous research results. In addition, there is an amendment performed on the Strategy Implementation Model (SIM) according to conclusions regarding implementation paths used and their associated factors.

4. Conclusions

Deductive and inductive approaches in data analysis and conclusions framework

Descriptive research is used to obtain a complete and accurate description of events, conditions, and relationships surrounding the subject under study. In turn, explanatory research requires the use of special methods to identify cause and effect. By using a deductive approach, theoretical findings of literature review, in relation to qualitative research and statistical results, are compared for verification of conclusion statements.

The deduction was initiated by moving from the general theoretical and qualitative research findings to specific statistical findings. So, by using the deductive approach (theory-to-data), the results from the literature review and the qualitative research findings tested against observed data. Deductive logic is used to verify them.

Consequently, the researcher will need to test if theoretical and qualitative research results are true, and shows evidence of logical implications of the theory, by looking at specific statistical results. Since theories are statements about relationships between concepts, it is expected to see the same links between specific concrete instances of the concepts, if they are valid. In other words, by using this mixed mode of conclusion formulation, it is hoped to identify if theoretical and qualitative research results are true. Ergo, the hypotheses logically implied by them should also be true.

On the other hand, by adopting an inductive approach, statistical results can also be interpreted by developing justifiable conclusions in relation to theoretical findings of literature review and qualitative research results. The inductive approach began with information about specific statistical observations and then generalized the results to a wider range of situations for the formulation of general conclusions.

The difficulties of survey data collection

There were myriad complications in collecting the survey questionnaires. Participants found it difficult to fill in the survey during the work day, therefore, according to feedback, completed it outside work hours. Another noted difficulty was that the survey started during their summer vacations and many of them were out of the office or preparing for leave. Despite these and other complexities, due to the researchers persistence with reminder emails and phone calls, 105 completed questionnaires were returned out of 180 sent out (58.33%, which is graphically shown in figure 3.1 in the analysis chapter). This is seen as a good result.

Statistical analysis conclusions

Analysis of the questionnaire showed that most participants were employed in project and business management areas of their organisations. 10.48% were from different areas but, even then, they were involved with project management practices as well. To sum up, most participants had more than 5 years experience in project management while the rest had more than 15 years.

The total average percentage of the Likert scale of "agree" and "strongly agree" answers' scores are displayed in figure 3.3 in chapter 3. The results show that 61.73% "Agree", 25.71% "Strongly Agree" and 10% "Disagree". This means that the questions' statements, regarding the factors influence on the implementation of a strategic project, are probably true, as a greater percentage of the survey population "Agree". The latter is also statistically validated (by calculation of mean and median) as it shows that the main tendency of all answers is near the Likert's scale degree of "3", i.e. "Agree". Figure 5.1, in appendix 5, shows the 3D views of the total percentage of Likert's scale proportions of all questionnaires' answers in a population of 105 samples.

By using "Box-Plots" presentations, figure 3.14 shows the average positive percentages of factors' assessment from survey questions 4-32 and the average percentages of influencing factors 1-29. In addition, the histogram showing distribution of the average percentage of positive scores (figure 3.15) also shows an assessment of the same questions and influencing factors. It is observed that a greater proportion of percentages is between 35% and 70%.

Analysis of the answers to questions 1-3 revealed that almost all participants accept that project management is, or that it should be, the main path for the implementation of a strategic project. This means that the carrying out of such projects should be performed through portfolio and program management processes. It is notable, however, to say that the latter had the full commitment of all participants with a tendency to "Strongly Agree" with a score of "4" degrees in the Likert scale, with a huge 57.14%.

The elements of project planning, implementation and sequences that should be used

The key issue here is the exploration of what path the respondents believe *should* be used in their own companies as opposed to the path that is *actually* used. These results were attained according to the most dominant scores of cross tabulation.

In the survey, the first question regarding what implementation paths should be used is:

1. Which elements of project planning and implementation do respondents say should be used, and in what sequences should they be used?

In other words, what combination of project planning paths do they believe should be used, by project managers, to implement a strategic project. Such a combination, for example, could be achieved through portfolio and program management, through project management on its own or by using other methodology.

Appendix 5 shows the proportion analysis and summaries of all answers as well as the detailed analysis of all factors assessment proportions (in relation to the strategic projects implementation paths). The percentage proportions of the implementation paths that should be used are displayed in table 3.10.

The next research question in the survey, relating to implementation paths, is "*Do respondents think that the sequence of elements of project management should be used, and are they used?"*

The literature review findings of document two and qualitative analysis of document three revealed that most of the implementations of a strategic decision in organisations are performed through the following combination sequences illustrated in table 4.1. The assessment of project management context links, asked in section C of the questionnaire, is based on previous findings.

S1	Through Portfolio to program and project management	
S2	Through Program and project management	
S3	Through Portfolio and project management	
S4	Direct through Project Management	
S5	By using other methodology	

Table 4.1. The sequences (S1- S5) of implementation of a strategic decision used in the questionnaire.

This can also be seen by using a cross tabulation (see appendix 13) of the implementation path used (S1–S5 as illustrated in table 5a.2 in appendix 5a) and the Likert scale rating scores (based on the answers to questions 1-3). Cross tabulating involves taking two variables and comparing the results of one variable against the other to see how they inter-relate. It helps to

search for patterns of interaction. In brief, this method revealed that the most dominant path for strategic projects implementation, in practice, is as follows, most to least preferred.

The first question asked in section A of the survey is:

Q1. The implementation of a strategic project should be through portfolio, program and project management processes.

From the statistical results (answers to question 1), project management should be the main path for a strategic project implementation. Consequently, this should be performed through portfolio and program management processes. The latter had the full commitment from most of the participants. The tendency to pick "Strongly Agree" in the Likert scale was 57.14%.

As a result, by a cross tabulation of S1-S5 * Q1, it was found that the sequences, according to the most used paths, are:

1. **S3.**Through Portfolio and project management
2. **S4.**Direct through Project Management
3. **S1.**Through Portfolio to program and project management

Even though most of the participants "Agreed" and "Strongly agreed" with the flow of the links of project management context, a different combination in reality. As shown, a greater percentage of participants preferred the path of category S3-Through Portfolio and project management. In addition, a sizeable percentage preferred the path of S4-Direct through Project Management as well. Finally, a small percentage, less that 20%, preferred the path of S1-Through Portfolio to program and project management.

The second question asked in section A of the survey is:

Q2. Organisational operating plans should be linked with Portfolio and Program Management processes.

In a way, this assessment also had a positive tendency in all 105 questionnaires. The percentages here were 48.57% "Strongly Agree" and 51.43% "Agree" using Likert's scale.

In this case, by a cross tabulation of S1-S5 * Q2 it was found that the sequences, according to the most used paths, are:

1. **S3.**Through Portfolio and project management
2. **S4.**Direct through Project Management
3. **S1.**Through Portfolio to program and project management

The third question asked in section A, of the survey is:

Q3. The Portfolio and Program Management are the main processes for strategic projects prioritisation.

It was found that Portfolio and Program Management were the main processes for strategic projects prioritisation. A large percent “Agreed” with this statement while a smaller percent “Disagreed” (9.52%) and "Strongly disagreed" (4.76%). The previous results indicate a certain amount of doubt that portfolio and program management are used as the main paths for the strategic projects prioritisation in practice.

As a result, by a cross tabulation of S1-S5 * Q3 it was found that the sequences, according to the most used paths, are:

1. **S3.**Through Portfolio and project management
2. **S4.**Direct through Project Management
3. **S1.**Through Portfolio to program and project management

According to previous analysis, the link between the processes of “Portfolio Management” and “Program Management” is not active and not used well enough in practice. Perhaps this conjecture has to do with the size and type of the organisation or other similar situations. Those last mentioned variables (size of organisation, type of activity) were not collected by this research survey and they are seen as an opportunity for further research. Meanwhile, the consequent conclusion can be observed in table 3.10 as well as in figure 3.16.

The analysis in chapter 3, based on answers to questions 1-3, is in relation to the paths used and the categories of S1-S5. The results are illustrated in figures 3.17, 3.18, 3.19, and 3.20. Figure 3.21 shows the tendencies and preferences of participants from a different point of view.

Definition of the six most important influencing factors

The second research question in chapter 1 of this study is:

2. By assessing the six main factors found in qualitative research, what do respondents think is the level of their importance in influencing the effectiveness, or otherwise, of the overall project management process?

The analysis and the percentage proportions of factors 1-29 are presented in table 5a.10 and figure 3.4. These are the factors' assessment in each project management context (PCM1 – PCM5 as coded in table 5a.1, appendix 5a). To define the six most important influencing factors, the magnitude of the most significant factors found in qualitative research (in relation to those found in quantitative research) should be validated and assessed. According to findings, the results of this are shown below in table 4.1a.

From Qualitative research
1. Human factor
2. Organisational quality
3. Information technology support
4. Organisational communication
5. Project management strategy
6. Organisational project management maturity

Table 4.1a. The most important factors found by qualitative research.

The most important factors found by their independent assessment in the survey questionnaire

The contingency tables of "position in organization" (in relation to the rating scales of percentage scores of most important factors assessment) are illustrated in appendix 14. In this case, the test of independence between the rows and columns (Chi-square) was also performed. Furthermore, the frequency test of the most important factors, in relation to the position in organisation, revealed a new importance list. In statistical analysis of survey results through the separate assessment of the six important factors (those found by qualitative research), the "Organisational Communication" factor was found to have the greatest influence. Similarly, this was near the same percentage of "Human Factor" and "Project Management Strategy". Table 4.2 illustrates the new list of those six factors.

1. Organisational Communication

2. Human Factor
3. Project Management Strategy
4. Organisational Project Management Maturity
5. Organisational Quality
6. Information Technology Support

Table 4.2. The most important factors found through the separate assessment of the survey questionnaire.

The most important factors found through the assessment of the percentage proportions of highest scores.

Table 5a.10 (appendix 5a) and figure 3.4 shows the percentage proportions of factors, sorted by their highest scores. Those factors sorted by the most important are illustrated below in table 4.3.

1. Upper management consensus and commitment
2. Organisational culture
3. Projects prioritisation
4. Human factor
5. Stakeholders
6. Organisational communication

Table 4.3 Most important factors from the assessment of the survey questionnaire.

The most important factors found from cumulative analysis of positive answers of questions 4-32 and factors assessment (F1-F29.)

Essentially, the analysis is performed (see Table 5a.16 in appendix 5a) by using a cumulative calculation of average percentages of participants that gave “Agree” and “Strongly Agree” answers to questions 4-32 in association with the assessment of influencing factors (F1 to F29 illustrated in figure 3.10). The factors found as the most important, according to analysis results, are illustrated below in table 4.4.

From Quantitative research

1. Upper management consensus and commitment
2. Projects Prioritisation
3. Organisational culture
4. Human Factor
5. Organisational politics
6. Project management strategy

Table 4.4. The most important factors found from cumulative analysis of positive answers to questions 4-32 and factors assessment (F1-F29).

The most important factors found by the dispersion of the percentage of choices (of influence factors 1-29) by each of the categories of "participants' years of experience".

The percentage proportions of answers from the assessment of the influencing factors, in relation to the total percentage of years of experience in project management categories, are presented in table 5a.14, appendix 5a. The dispersion can be observed in figure 3.7 showing the percentage of choices (of influence factors 1-29) by each of the categories of "participants' years of experience". In contrast, the most important factors, of those having 16-25 years experience in project management, were found to be the "Support from Information Technology", "Project team members work load" and "Dependences between strategic or other projects". On the other hand, of those with more than 25 years experience, the "Ethical factors", "Project management process", "Stakeholders", "Project Earned Value management" and "Project management strategy" were found to be the most important factors.

The final list of the most important factors

The previous analysis, based on the four different assessments of influencing factors lists, showed that there are different views in each category.

The analysis based on qualitative research assessment of participants' answers in document three (using the Delphi technique variation method) revealed that the "Human Factor" is the most important. In contrast, quantitative research of the factors assessed from question 4-32 revealed that the "Human Factor" was fourth in the list.

Nevertheless, according to cumulative results, of all four previous assessments, the "Human factor" is found to be the most important. "Organisational communication" is second while "Organisational Quality" and "Project Management Strategy" are third. In fourth place is

"Information Technology Support" and last, the "Organisational Project Management Maturity" factor.

The list of most important factors (from most dominant to least) found through the survey research are as follows: "Upper management consensus and commitment", "Projects prioritisation" and "Organisational culture" in the same second position and, finally, "Organisational politics" and "Stakeholders" in the third position.

While the principles of evaluating the lists of the factors are straightforward to define, establishing the means by which such determinations can be made seems to be far more complex. By choosing the first four factors from the first analysis and the first four revealed in the second analysis, the final list of the six most important factors, illustrated below (table 4.5), is produced. In fourth and fifth positions are two factors as they are found to have nearly the same importance. What emerged from this analysis is that the initial assumption of the most important factors identification could be evaluated through a combination of different approaches.

1. Human factor
2. Upper management consensus and commitment
3. Organisational communication
4. Projects Prioritisation and Organisational culture
5. Organisational Quality and Project management strategy
6. Information Technology Support

Table 4.5 Most important project management context influencing factors

Implications of findings in model formulation and modification

Business modeling is an advanced technique to model business processes. They provide direction for expressing business processes, or strategies, in terms of business activities and collaborative behavior so we can better understand the business process and the participants in the process. A conceptual model describes the general functional relationship between components of a system displayed diagrammatically by including charts and figures that present information visually (Wideman 2003).

The strategic question associated with the construction of the "SIM" model is as follows:

"How can the various factors that influence the implementation and success of a strategic project be used to improve the effectiveness of the "project management context" processes".

The first version of a "Strategy Implementation Model" (SIM), based primarily on conceptual framework, is illustrated in figure 2.3, document three. A new version of it, based on qualitative research results, is presented in figure 5.3, document three. The final updated version, based on quantitative research results, is now presented in figure 4.1.

By evaluating the SIM, as reflected in the research conceptual framework, the researcher sought to develop a grounded understanding of what was being implemented in organizations, as project management paths, in its broadest sense. As well as including the preferred implementation paths used in practice, this approach sought to understand by manipulating the influencing factors of the "project management context dimensions".

In this framework, the links are perceived as active connections imposed through the five (S1-S5) selected paths. The S5 path to "other methodology" box, means all those non-project activities used in order to achieve the strategic plans. Each path is influenced by its respective factors. Their importance is defined according to the research results in figure 3.22 and table 5a.26 (appendix 5a). The respective factors (F1-F29) per implementation path used (S1- S5) and per project management context elements (PMC1- PMC5) were assessed in table 5a.23 and 5a.24 in appendix 5a.

On the other hand, each of the "project management context" elements (PMC1-PMC5), showed in the framework of the model, are influenced by the respective factors illustrated in appendix 15. In the same appendix the possible degree of their influence on the "project management context" elements is also indicated. This whole context is being influenced by the most important factors revealed by the analysis in table 4.4, yet, it also depends on the path selected and the specific elements that are involved. Consequently, the path is influenced by the respective factors.

The project management office (PMO) (shown in figure 4.1 in the model framework) should act proactively and identify the critical level of influence of all respective factors for each implementation path selected. At this point, it controls the most important factors (according to their significance level) in relation to the specific path used (S1–S5). Simultaneously, it should control the in-between factors of influence as well. In other words, there is a need for continuous measurement and identification of the type (positive, negative or neutral) and the

degree of influence for each of the factors performed on the "project management context" elements involved. Based on that information, the PMO should create the required strategic anticipation plan in order to manipulate and control their influences within appropriate levels. In this case, it would be impossible to understand such systems without using the appropriate factor analysis and to be aware of any negative or positive feedback.

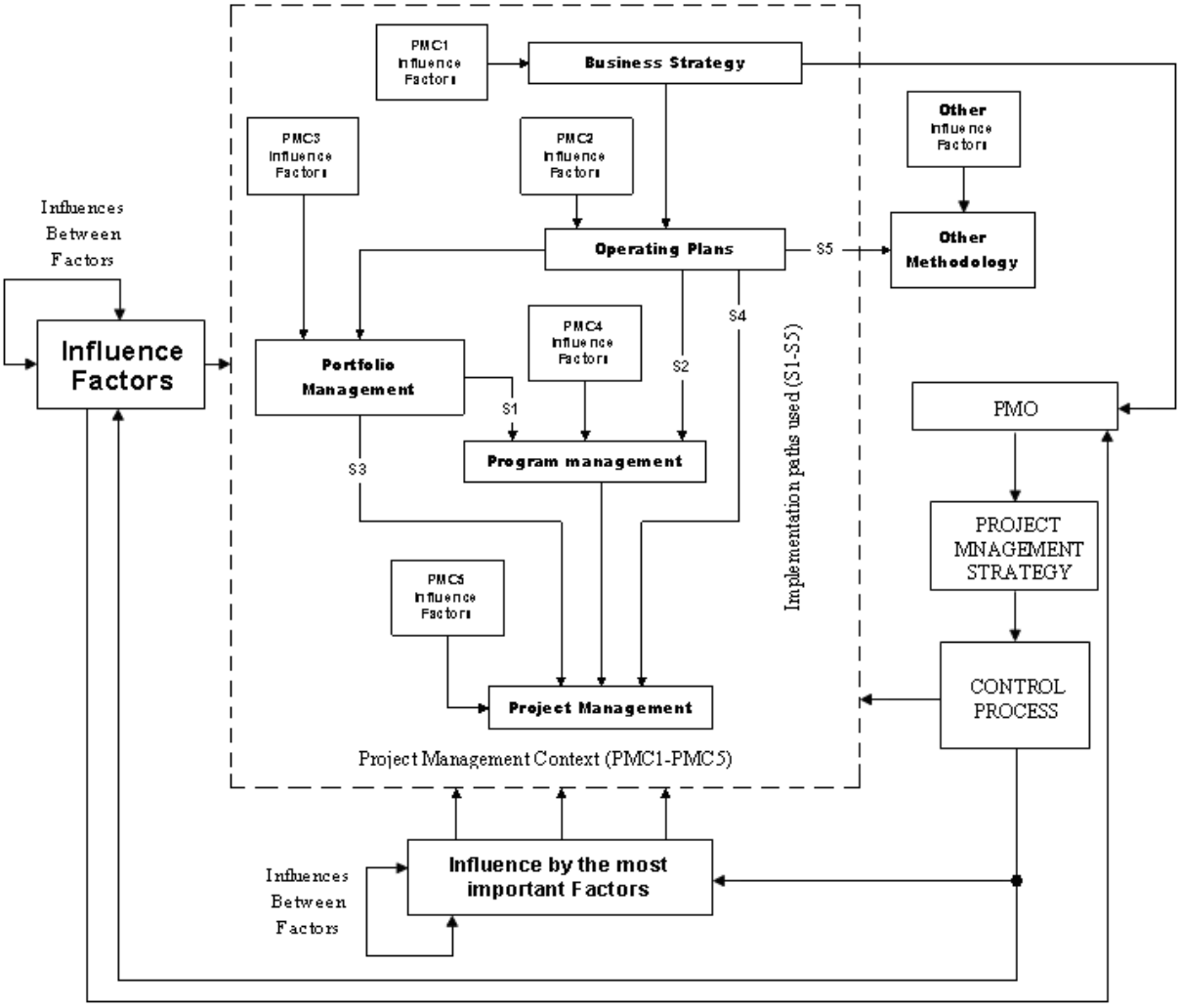


Figure 4.1 Revision of the "Strategy Implementation Model" (SIM).

"Strategy Implementation Model" (SIM) control theory

To gain better understanding of the SIM activity, illustrated in figure 4.1, it should be perceived as a live, active system based on continues feedbacks. Likewise, in order to gain a better understanding of how it works, the SIM could be compared to the human body's control method. For example, our body is comprised of multiple feedback control systems i.e. Blood pressure, blood volume, body temperature, hormone levels and thousands of proteins that keep cells alive and functioning. Without these control systems, life would not be

possible. Subsequently, the respective factors could be controlled, as well, in the suggested SIM.

Control theory originated in engineering and mathematics and is a premise that deals with influencing the behaviour of dynamical systems. Feedback describes the situation when output from, or information about the result of, an event or phenomenon in the past will influence the same event/phenomenon in the present or future.

In a closed-loop control system, a sensor monitors the output and feeds the data to the controller which adjusts the control input, as necessary, to keep the control error to a minimum (to maintain the desired status). Feedback on how the system is actually performing allows the controller to dynamically compensate for disturbances to the system. An ideal feedback control system cancels out all errors, effectively mitigating the effects of any factors that may or may not arise during operation and producing a response in the system that perfectly matches the required status.

Figure 4.2 presents two categories of control feedbacks. Feedback greatly alters a system's dynamics and it is important to understand and anticipate these effects. H(s) is the gain of the feedback path. G(s) - H(s) is called the loop gain. C(s) represents the initial input for the start-up of the functionality of the system. A net is created by forward gain G(s) and feedback gain H(s), known as closed-loop transfer functions. Finally, R(s) is the desired output from the system.

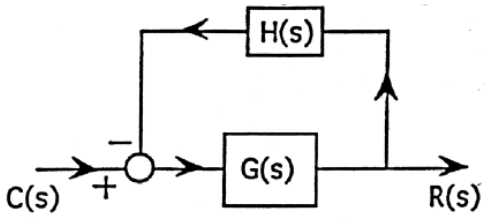


Figure 4.2 Feedback Control System (Robinson 1994).

Figure 4.3 shows a simplified view of the SIM functionality. The “Sensor” represents the measurements of factors’ influences and the “Controller” the control of PMO applied to the “Project management context” elements shown as the “System”.

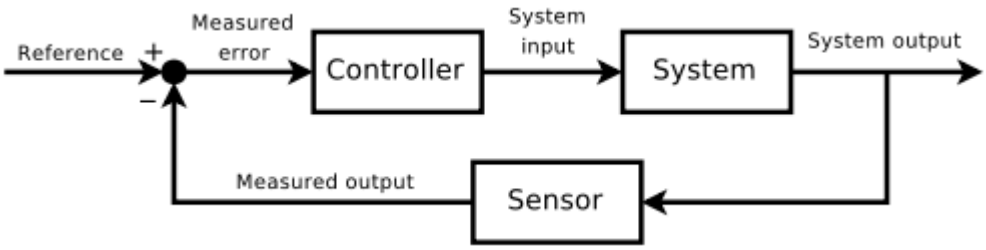


Figure 4.3. A feedback Control System.

The concept of the feedback loop to control the dynamic behaviour of the system

This is seen as feedback as the sensed value is subtracted from the desired value to create the error signal which is adjusted by the controller. The feedback pathway should be made explicit in order to analyze the system processes and variables of interest (factors). Most importantly, the researcher should know the type of feedback and how to check for its potential instability. Such non-linear feedback, as the suggested SIM, must ensure stability without regard to the inner dynamics of the system. The possibility to fulfil different specifications varies from the model considered and the control strategy chosen.

Comparison with literature review results in document two and qualitative research in document three

The first theoretical approach of the "project management context" as a conceptual framework, and the list of influence factors, was produced and discussed in document two. Theoretical investigation revealed that there could be a logical flow to the implementation of a strategic project. This flow was Strategy, operating plans, portfolio management, program management and, finally, project management. They were found to be the main elements of the "project management context". Each of those elements had a supportive theory on their structure and behaviour. The respective influencing factors were then revealed to affect those elements. The possible links and factors of influence were assessed for their validity (by their possessiveness) through the survey answers. The positive degree of answers, in the first three questions, revealed the tendency to use the paths of the project management context. Finally, the analysis of question 4-32 revealed the participants' agreement (or disagreement) on factors of influence1-29.

Assessment of participants' opinions, regarding which factors influence the project management context (PMC1-PMC5), revealed the range of the respective factors that are influencing each of the elements. Finally, the relationship between the qualitative research results and the latter statistical findings revealed the final six most important factors, which are illustrated in table 4.5. In document three, the links between the elements emanated first from theory, and were then validated through qualitative analysis of participants' narratives.

The influencing factors were then assessed in relation to those revealed by qualitative analysis. Subsequently, by using the variation method of the Delphi technique, those factors were re-assessed and the six most important were identified. Finally, by using quantitative research, those six most important factors were assessed through the analysis of the survey data. The final assessment of factors, however, is based on all documents' findings and performed by using a cumulative method.

The possibility of using "chaos theory" on factors of influence and in relation to the project management context

Chaos Theory is the qualitative study of unstable aperiodic behavior in deterministic nonlinear dynamic systems. It regards organisations as complex, dynamic, non-linear, co-creative and unbalanced systems. By this point of view, the behavior of influencing factors cannot be predicted by past and present events or actions. In a state of chaos, organisational factors behave in ways which are simultaneously unpredictable (chaotic) and patterned (orderly). Irregular behavior is observed when there is no variable, describing the state of the system that undergoes a regular repetition of values. Unstable, aperiodic behavior is highly complex; it never repeats itself and continues to manifest the effects of any small perturbation (Kellert 2005).

The appeal of chaos theory is the view that organisations are complex, adaptive systems that have behaviors similar to those found in nature (Stacey, 1996). Practically, it could be believed that project management context, in relation to the influencing factors, is also a non-linear dynamic system, having the same characteristics as natural phenomena. In a scenario where businesses operate in a turbulent, complex and unpredictable environment, the tenets of "Chaos Theory" can be extremely valuable. As per the current mathematical theory, a chaotic system is defined as showing "sensitivity to initial conditions". In other words, to predict the future state of factors in a project management context system with any kind of certainty, it is necessary to know the initial conditions with infinite accuracy, since errors increase rapidly with even the slightest inaccuracy. The limitations of applying "Chaos Theory" mainly arise from choosing the input parameters of influencing factors. The methods chosen to compute these parameters depend on the dynamics underlying the data and on the type of analysis used which, in most cases, is highly complex and not always accurate. I is not always easy to find an immediate and direct application in the business environment using the "Chaos Theory", however, mapping of the business environment, using this theory, is definitely worthwhile studying. Research and study in this area can be extremely useful for the business and financial world.

Research limitations and future directions

Considering the existing time limits, current research was simplified only in service sector organisations. Thus, identification of influencing factors is not performed by each organisational sub-type (Bank sub-sector, insurance, etc). Similarly, the influences between the factors were not assessed by this research.

Research conclusions

The main concept of this research was to specifically identify the possible links between the "project management context" elements, leading and constructing the combination of implementation paths, and the definition of their respective influence factors. The multiple choices of the participant revealed exploratory, strategic implementation paths. The flexibility was the option to choose the appropriate implementation path in this adaptive model.

The insight that there should more than one standard path for strategic project implementation is a useful and practically relevant conclusion gained from this research. The survey results showed that the first dominant selection is to use the path through portfolio and project management or, secondly, directly through project management. Portfolio to program and project management is a less preferred path and only seems to apply to large organisations with multiple types of projects. Based on results, it is favourable to have the flexibility to use the appropriate implementation path corresponding to the specific strategic project requirements. Finally, there is the tendency, in smaller organisations, to overcome the operating plans element process. Even if this occurred in practice, it does not correspond with the SIM's philosophy.

Practically, in order to enhance the performance of the model, it is necessary to assess and identify the most important factors of influence for each of the elements involved in the implementation paths selected. The status and behaviour of those factors should be continuously controlled. The identification of possible influencing factors depends on existing organisational situations, at the specific point of time, in association to the implementation path selected.

The additional factors suggested by the participants ("The organizational structure" and the "Financial organisation status") were characterised as embedded sub-factors of other factors. There will always be the possibility of identifying additional factors or sub-factors and adapting them to a new or existing category. The latter depends on the organisational status, strategic project specifications and the researcher's point of view.

Consequently, the inference here could be that each identification of factors depends on the implementation path selected, the elements of the "project management context" involved, the in-between factors of influence and their relationship. In conclusion, it also depends on the factors' status on the specific point of organisational time.

Further research opportunities

This particular research showed a way to rethink the modes of strategic project implementation. Meanwhile, the influencing factors and the suggested SIM were both based on the comprehensive relationship between theory (literature review findings) and practice (qualitative and quantitative findings).

In particular, the identification of the relationship and degree of influence between the factors is an important yet extensive study incorporating a future research opportunity. This may be achieved by a deeper investigation of relationship of factors based on "Chaos Theory". Such investigation could be performed in additional organisational sectors, like manufacturing, construction, health, etc. This would contain a larger survey sample from a range of different organisational types.

As noted earlier, the suggested SIM is an initial approach for the development of a project management strategic control system. Obviously, there is room for further amendment and improvement of its structure. For example, through an extensive identification of each model's element processes and their relationship. The flexibility of the model is based upon the option to use different implementation paths by reconsidering the respective influencing factors. The control performed in the model is based on the appropriate continuous measurement and assessment of factors applied by the PMO. Subsequently, using the appropriate project management strategy for projects implementation (through the preferred path), is based on a continuous feedback-decision-control-feedback life cycle for manipulation of the respective factors.

References

Berger, Peter L. and Thomas Luckmann. 1967. The Social Construction of Reality. Garden City, N.Y.: Anchor Books.

Bryman Alan , Bell Emma , (2006), Business Research Methods, Oxford University Press.

Creative Research Systems, (2008), Survey Design, URL: http://www.surveysystem.com.

Collingwood Pat, (2006), Intergrating theory and practice, University of Stirling.

Cochran W.G. (1977). Sampling techniques. Third edition. John Wiley & Sons, New York.

Dietmar Janetzko, (2001), Processing Raw Data both the Qualitative and Quantitative Way, FORUM: QUALITATIVE, SOCIAL RESEARCH, Volume 2, No. 1, Art. 11 February 2001.

Eaton, M. (1998). "Aesthetic Concepts". Routledge Encyclopedia of Philosophy, Version 1.0. London and New York: Routledge.

Earl R. Babbie (2005), The Basics of Social Research, Thomson Wadsworth, ISBN:0534630367.

Ellis, C. and Bochner, A.P. (2000) 'Autoethnography, Personal narrative, Reflexivity: Researcher as Subject' in Denzin, N.K. and Lincoln, Y.S. (2000) (Eds.) Handbook of Qualitative Research (Second Edition) London: Sage, pp. 733-768.

Easton Valerie J. and McColl's John H., (2008), Statistics Glossary v1.1), http://www.stats.gla.ac.uk/steps/glossary/index.html

Fisher, Colin. (2004). Researching and Writing a Dissertation for Business Students. FT. Prentice Hall.

Giddens, Anthony (1994). Living in a post-traditional society. In Ulrich Beck, Anthony Giddens & Scott Lash (Eds.), Reflexive modernisation. Politics, tradition and aesthetics in the modern order (pp.56-109). Cambridge: Polity Press.

Hedayat A.S. & Sinha B.K. (1991). Design and inference in finite population sampling. John Wiley & Sons, New York.

Janetzko, Dietmar (1996). Knowledge tracking—A method to analyze cognitive structures. GBerichte,(2000)Economic and Social Research Council, (2008), Research Ethics Framework (REF),www.esrcsocietytoday.ac.uk.

Kellert, Stephen H. (2005), The Uses of Borrowed Knowledge: Chaos Theory and Antidepressants, Philosophy, Psychiatry, & Psychology - Volume 12, Number 3, September 2005, pp. 239-242, E-ISSN: 1086-3303 Print ISSN: 1071-6076 DOI: 10.1353/ppp.2006.0008

Lewis-Beck, M. A. Bryman. T. Futing, (2003), Encyclopedia for research methods for the social sciences, Thousand Oaks (CA): Sage Publications.

Newman, David A. 1995. Sociology: Exploring the Architecture of Everyday Life. Thousand Oaks, CA: Pine Forge Press.

Nephrol Nurs J. Denscombe, M. (2003) The Good Research Guide for small scale social research projects (Second Edition) Maidenhead: Open University Press

Russell C (2005) Evaluating quantitative researcli reports.

Robson, C., (2002), Real World research: A Resource for Social Scientists and Practitioner-Researchers, Oxford Blaclwell

Robinson D, (1994), Introduction to Feedback Control Systems, Lecture by D Robinson on Feedback Control Systems for Biomedical Engineering, Fall 1994, Re-Edited by T Haslwanter

Roche, M.W. (2004). Why Literature Matters in the Twenty First Century. London: Yale University Press.

Robson, C. (2002). Real World Research: A resource for social scientists and practitioner-researchers. Second Edition. Oxford: Blackwell.

Salant Patricia, Dillman Don A., (1994), How to Conduct Your Own Survey, John Wiley & Sons, Inc., New York.

Stacey, R. D. (1996). Complexity and Creativity in Organizations. USA: Berrett Koehler.

Tsantas, N. Moisidis, C. Bagiatis, N. Chatzipadelis, T., (1999), Data analysis with statistical packages SPSS, Excel, S-Plus. Ziti publications.

Wideman, R. Max. (2003). First Principles of Project Management. Revision 16. AEW Services

William D. Richards, Andrew J. Seary, (2008), The Vancouver Network Analysis Team, Specialists in social network analysis software, URL: www.sfu.ca

XLStat 2008, 2008, Statistical Analysis manual, AddinSoft

Appendices

Appendix 1.

"The Links and the influence factors between
Organisational Strategy and Project Management"

Questionnaire

Section A

Please tick the appropriate level of the following agreement indicators according to your opinion.

Q1. The implementation of a strategic project should be through portfolio, program and project management processes.

Strongly agree Agree Disagree Strongly disagree

4	**3**	**2**	**1**

Q2. Organisational operating plans should be linked with Portfolio and Program Management processes.

Strongly agree Agree Disagree Strongly disagree

4	**3**	**2**	**1**

Q3. The Portfolio and Program Management are the main processes for strategic projects prioritisation.

Strongly agree Agree Disagree Strongly disagree

4	**3**	**2**	**1**

Section B

Q4. The prioritisation of strategic projects in portfolio management influences the project management context.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q5. The absence of consensus and commitment in organisational upper management is influencing critically the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q6. Organisational complexity influences the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q7. Organisational culture influences the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q8. Organisational Politics influence the strategic project implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q9. Development of organisational knowledge management has influence positively the strategic projects implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q10. The Human Factor influences critically the strategic projects implementation and the whole project management context as well.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q11. Project team members' work load due to other projects or activities has a negative influence on strategic project implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q12. Quality in organisational processes and functions affects positively the project management context.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q13. Organisational bureaucracy is an extremely important factor influencing negatively the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q14. The appropriate support from other organisational functional and operational processes has a positive influence on strategic projects implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q15. The external environment influences affect the implementation of a strategic project.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q16. Organisational ethical factors affect the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q17. The absence of required organisational training affects the strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree

4	3	2	1

Q18. Organisational communication is perceived as a critical factor for successful strategic project implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q19. The establishment of an appropriate and qualitative project management process affects the implementation of a strategic project.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q20. Information Technology support plays a very important role on the implementation of a strategic project.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q21. Stakeholders' influence is perceived as an important factor for the implementation of strategic projects.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q22. Using Project Earned Value management method helps to improve the implementation of strategic projects.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q23. Project's complexity is an important factor influencing strategic project implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q24. The dependences between strategic or other projects affect their implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q25. Flexibility in project management processes help the implementation of strategic projects.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q26. If there is an extension beyond the planned time of a strategic project implementation, this affects negatively the whole project management context as well.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q27. The increment of the project cost beyond the planned budget affects the strategic project implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q28. The quality of the delivered product of a strategic project affects the organisational and project management contexts.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q29. Using risk management process helps positively the strategic project implementation.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q30. The creation of a Project Management Office (PMO) helps on successful implementation of strategic projects.

Strongly agree Agree Disagree Strongly disagree

4	3	2	1

Q31. The absence of project management strategy influences negatively the strategic projects implementation.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Q32. Organisational project management maturity is perceived as a very important factor for the implementation of strategic projects.

Strongly agree	Agree	Disagree	Strongly disagree
4	**3**	**2**	**1**

Section C

Assessment of strategy and project management links

Strategy is linked with project management through decisions of projects and implemented through operating plans, portfolio and program management.

Please tick in one of the following in the box:

Most of implementations of a strategic decision in your company are performed through:

S1	Portfolio, program and project management	
S2	Program and project management	
S3	Portfolio and project management	
S4	Direct through Project Management	
S5	By using other methodology	

Assessment of the importance of factors

According to your opinion, which of the following factors are critical and most important for the implementation of strategic projects?

Please tick on of the following factors according to their importance:

Human factor

High importance	Middle Importance	Low Importance
3	**2**	**1**

Organisational quality

High importance	Middle Importance	Low Importance
3	**2**	**1**

Information technology support

High importance	Middle Importance	Low Importance
3	**2**	**1**

Organisational communication

High importance	Middle Importance	Low Importance
3	**2**	**1**

Project management strategy

High importance	Middle Importance	Low Importance
3	**2**	**1**

Organisational project management maturity

High importance	Middle Importance	Low Importance
3	**2**	**1**

The following factors affect the project management context areas (Tick one or more boxes in the following table)

		Affected areas				
	Influencing Factors	**Organisational Strategy**	**Operation Plans**	**Portfolio management**	**Program Management**	**Project Management**
F1	Projects Prioritisation (by Portfolio Management)					
F2	Upper management consensus and commitment					
F3	Organisational culture					
F4	Organisational politics					
F5	Organisational knowledge management					
F6	Human Factor					
F7	Organisational quality					
F8	Organisational bureaucracy					
F9	Organisational complexity					
F10	Operational processes support					
F11	External environment					
F12	Ethical factors					
F13	Organisational Training					
F14	Organisational communication					
F15	Project team members work load					
F16	Dependences between strategic or other projects					
F17	Project management process					
F18	Support from Information Technology (IT)					
F19	Stakeholders					
F20	Project time					
F21	Project cost					
F22	Project's delivered product quality					
F23	Project complexity					
F24	Project Earned Value management					
F25	Project management flexibility					
F26	Risk management					
F27	Project Management Office (PMO)					
F28	Project management strategy					
F29	Organisational maturity on project management					

Please express your additional comments regarding the links and the influencing factors between strategy and project management.

Your current position in the organisational context is in:

1. Project Management	
2. Business Management	
3. Other	

Your years of experience in Project Management are:

1. 1 - 5	
2. 5 - 15	
3. 15 - 25	
4. More than 25 years	

Appendix 2. Contact letter

THE NOTTINGHAM TRENT UNIVERSITY

NOTTINGHAM BUSINESS SCHOOL

Research coordinators:

Professor Diane White / Nottingham Trent University

Professor Dimitrios Tseles / Dean of Technology Engineering Institute of Piraeus

Researcher[2]: George A. Vassilopoulos

Questionnaire topic: "The Links between Organisational Strategy and Project Management"

Mr / Mrs,

My name is George Vassilopoulos and I work as a Project Manager in INTERAMERICAN, in the Division of Information Technology - IT Demand Department. At the same time I'm a DBA candidate at Nottingham Trent University. My professional and academicals interests are focused on the above mentioned topic, because I believe that the successful implementation of Business Strategy is a crucial factor for any organisation. Strategy implementation and project management have developed quite separately, and independently. On the other hand, today, Project Management is perceived as an important vehicle and tool of modern strategies implementation.

I appreciate your involvement to the investigation of this research topic and I would therefore like to ask you to spend a few minutes in order to complete the attached questionnaire. Your experience and your views will be valuable to extract useful results.

For the purpose of this research, convenience sampling method is used. You are not obliged to write down your name or the name of your organisation. Answers will be treated with confidentiality and they will be used for academic purposes only. In case that you need further explanations regarding questions, please do not hesitate to contact me.

Thank you in advance for your co-operation.

George A. Vassilopoulos

DBA Candidate

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[2] "This research is performed in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

Appendix 3. Participants' information and consent form

THE NOTTINGHAM TRENT UNIVERSITY

NOTTINGHAM BUSINESS SCHOOL

DOCTOR OF BUSINESS ADMINISTRATION

The Links and the influence factors between
Organisational Strategy and Project Management

Participant information sheet and consent form

George A. Vassilopoulos

August 2008

Research objectives

The primary objective of this study is to identify all those links and reveal any gaps in the relationship between the business strategy key decisions and their implementation through project management process. Furthermore, the considerable extent of this research is to investigate those factors that influence this relationship. There is also the vision for the development of a “Strategic Link Model” which will participate in the active role of the translator between the organisation strategy and project management contexts, such as portfolio, programme & project processes.

Research ethical issues

The current research from an ethical standpoint will be conducted in accordance with fundamental and widely accepted principles, such as:

- Beneficence - 'do a positive good'
- Organisations and Participants Non-Malfeasance - 'do no harm'
- Informed Consent
- Confidentiality, anonymity and data privacy

Research procedures

- Negotiating access is requested from organisations through personal or via e-mail communication. Participants will be informed in order to understand the processes that will be engaged according to the scope of this research.

- Voluntary participation is requested from the organisations and participants and they will not be coerced to re-engage if they decide to withdraw. The participants will be given the opportunity to express any issues of concern pertaining to the research documentation given to them.

- The process, in which focus groups/interviews will be taped, will be highlighted at the outset of every interview and participants will be given the choice to decline.

- The confidentiality and anonymity of participants’ data will be assured as the norm for the ethical conduct of the research.

- The gathering of this research data will be done using quantitative methodology, while the disclosure of names, addresses, occupational and location details will be avoided.

- Anonymity will be assured by removing any such sensitive information from the study presentation. Issues from this research which may include sensitive or confidential information, will be dealt with by gaining consent from the participated organisations.

- All material gathered during this research will be treated as confidential and will be stored by a secure method. It will be made clear to participants that first, information will be shared with other academic researchers under strict terms and conditions, and secondly, that anonymity will be exercised.

It is important to demonstrate this confidentiality agreement by obtaining written consent from all participants in order to use the information for the present research, so it is required to fill-up the following form and return it to the researcher for keeping it as evidence in ethical approval process of NTU.

CONSENT FORM FOR THE DBA RESEARCH STUDY

Title of Project: The Links between Organisational Strategy and Project Management

Name of Researcher: George A. Vassilopoulos

	Please tick to confirm
• I confirm that I have read and understand the information sheet dated ..... (version .....) for the above study.	☐
• I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
• I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without any of my legal rights being affected.	☐
• I understand that relevant sections of any of research project's notes and data collected during the study may be looked at by responsible individuals from NTU, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
• I agree to my company being informed of my participation in the study.	☐
• I agree to take part in the above research study.	☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

When complete, 1 copy for participant: 1 copy for researcher site file: 1 (original) to be kept in research project notes.

Appendix 4. Questions and influence factors relationship

#	Influencing factors
F1	Projects Prioritisation (by Portfolio Management)
F2	Upper management consensus and commitment
F3	Organisational culture
F4	Organisational politics
F5	Organisational knowledge management
F6	Human Factor
F7	Organisational quality
F8	Organisational bureaucracy
F9	Organisational complexity
F10	Operational processes support
F11	External environment
F12	Ethical factors
F13	Organisational Training
F14	Organisational communication
F15	Project team members work load
F16	Dependences between strategic or other projects
F17	Project management process
F18	Support from Information Technology (IT)
F19	Stakeholders
F20	Project time
F21	Project cost
F22	Project's delivered product quality
F23	Project complexity
F24	Project Earned Value management
F25	Project management flexibility
F26	Risk management
F27	Project Management Office (PMO)
F28	Project management strategy
F29	Organisational maturity on project management

Table 4.1 Grouped and coded influencing factors

Q4. The prioritisation of strategic projects in portfolio management is influencing the project management context.	**F1**
Q5. If there is no upper management consensus and commitment of the organisational upper management this is influencing directly a strategic project implementation	**F2**
Q6. Organisational complexity is influencing a strategic project implementation.	**F9**
Q7. Organisational culture is influencing a strategic project implementation?	**F3**
Q8. Organisational Politics are influencing a strategic project implementation.	**F4**
Q9. Development of organisational knowledge management has a positive influence to strategic projects implementation.	**F5**
Q10. The Human Factor has a very critical influence to strategic projects implementation and in project management context.	**F6**
Q11. Project team members' work load due to other projects or activities has a negative influence to strategic project implementation.	**F15**
Q12. Quality in organisational processes and functions is affecting positively the project management context.	**F7**
Q13. Organisational bureaucracy is an extremely important factor influencing negatively the strategic projects implementation.	**F8**
Q14. The appropriate support from other organisational functional and operational processes has a positive influence in strategic projects implementation.	**F10**
Q15. The external environment influences are affecting the implementation of a strategic project.	**F11**
Q16. Organisational ethical factors are affecting the strategic projects implementation.	**F12**
Q17. The absence of required organisational training affects the strategic project implementation.	**F13**
Q18. Organisational communication is perceived as a critical factor for successful strategic project implementation.	**F14**
Q19. The establishment of an appropriate and qualitative project management process is affecting the implementation of a strategic project.	**F17**
Q20. Information Technology support is playing a very important role to the implementation of a strategic project.	**F18**
Q21. Stakeholders' influence is perceived as an important factor for the implementation of strategic projects.	**F19**

Q22. Using Project Earned Value management method is helping to better implementation of strategic projects.	**F24**
Q23. Project's complexity is an important factor influencing its implementation.	**F23**
Q24. The dependences between strategic or other projects are affecting their implementation.	**F16**
Q25. Flexibility in project management processes is helping to the implementation of strategic projects.	**F25**
Q26. If there is an extension beyond the planned time for a strategic project implementation, this is affecting negatively the project management context.	**F20**
Q27. The increment of the project cost beyond the planned budget is affecting the strategic projects implementation.	**F21**
Q28. The quality of the delivered product of a strategic project has affection to the organisation.	**F22**
Q29. Using risk management process helps positively to strategic project implementation.	**F26**
Q30. The creation of a Project Management Office (PMO) is helping to successful implementation of strategic projects.	**F27**
Q31. Having no project management strategy has a negative influence in strategic projects implementation.	**F28**
Q32. Organisational project management maturity is perceived as a very important factor for the implementation of strategic projects.	**F29**

Table 4.2 The relationship between survey questions and factors.

F1	**Q4**
F2	**Q5**
F3	**Q7**
F4	**Q8**
F5	**Q9**
F6	**Q10**
F7	**Q12**
F8	**Q13**
F9	**Q17**
F10	**Q14**
F11	**Q15**
F12	**Q16**
F13	**Q6**
F14	**Q18**
F15	**Q11**

F16	**Q24**
F17	**Q19**
F18	**Q20**
F19	**Q21**
F20	**Q26**
F21	**Q27**
F23	**Q28**
F23	**Q23**
F24	**Q22**
F25	**Q25**
F26	**Q29**
F27	**Q30**
F28	**Q31**
F29	**Q32**

Table 4.2a The relationship between survey questions and factors as variables.

Appendix 5. Analysis of Likert scale percentage proportion of questionnaire's answers

In Q1 question was asked if project management as main path of a strategic project implementation is applied by portfolio and program management assessment, 57,14% was of strongly agree (figure 5.1).

Rank	Scale	%
1	Strongly disagree	**0,00%**
2	Disagree	**0,00%**
3	Agree	**42,86%**
4	Strongly agree	**57,14%**

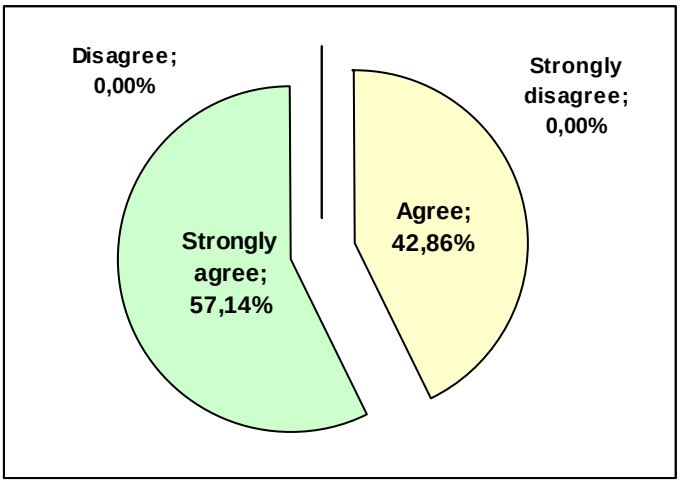

Figure 5.1 Likert scale proportions of question 1

This is related with the links between strategy and project management indicating in percentage the opinions and agreement on the implementation main path followed for a strategic project.

In Q2 was asked if organisational operating plans should be linked with Portfolio and Program Management processes assessment. This is related with the links between operating plans of an organisation and their implementation through portfolio, program and project management processes. The participants' opinions are based on if this link and path should be used for the implementation of strategic operating plans (figure 5.2).

Rank	Scale	%
1	Strongly disagree	**0,00%**
2	Disagree	**0,00%**
3	Agree	**51,43%**
4	Strongly agree	**48,57%**

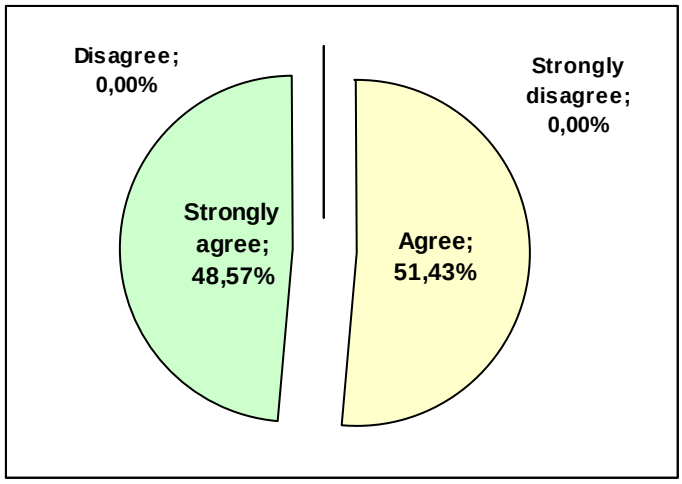

Figure 5.2 Likert scale proportions of question 2

In Q3 the Portfolio and Program Management are the main processes for strategic projects prioritisation.

This question asked for confirmation and agreement for the standardisation of the main processes of the project management context as the main path for strategic projects prioritisation. According to the participants' positions a 60% percentage agreed with this statement (figure 5.3).

Rank	Scale	%
1	Strongly disagree	**4,76%**
2	Disagree	**9,52%**
3	Agree	**49,52%**
4	Strongly agree	**36,19%**

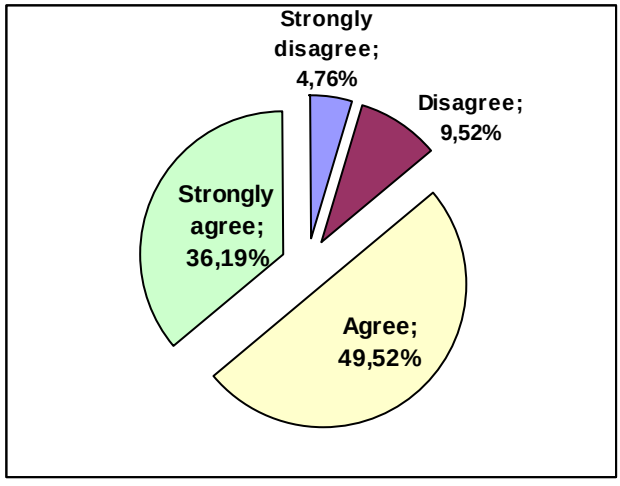

Figure 5.3 Likert scale proportions of question 3

In the following table 5.1 are illustrated the Likerts scales' percentage proportions of all 105 questions' answers.

SCALE	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Strongly disagree	0,00%	0,00%	4,76%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	0,00%	0,00%	9,52%	7,62%	0,95%	6,67%	0,95%	8,57%
Agree	42,86%	51,43%	49,52%	61,90%	56,19%	72,38%	47,62%	70,48%
Strongly agree	57,14%	48,57%	36,19%	30,48%	42,86%	20,95%	51,43%	20,95%
SCALE	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**
Strongly disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	11,43%	2,86%	13,33%	7,62%	16,19%	0,00%	11,43%	21,90%
Agree	57,14%	52,38%	59,05%	76,19%	61,90%	73,33%	72,38%	70,48%
Strongly agree	31,43%	44,76%	27,62%	16,19%	21,90%	26,67%	16,19%	7,62%
SCALE	**Q17**	**Q18**	**Q19**	**Q20**	**Q21**	**Q22**	**Q23**	**Q24**
Strongly disagree	0,00%	0,00%	0,00%	0,00%	0,00%	6,67%	0,00%	3,81%
Disagree	19,05%	3,81%	2,86%	18,10%	7,62%	18,10%	19,05%	6,67%
Agree	66,67%	45,71%	82,86%	60,95%	66,67%	66,67%	61,90%	71,43%
Strongly agree	14,29%	50,48%	14,29%	20,95%	25,71%	8,57%	19,05%	18,10%
SCALE	**Q25**	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**	**Q31**	**Q32**
Strongly disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	2,86%
Disagree	7,62%	34,29%	28,57%	4,76%	10,48%	11,43%	0,95%	7,62%
Agree	58,10%	53,33%	60,00%	82,86%	58,10%	56,19%	46,67%	61,90%
Strongly agree	34,29%	12,38%	11,43%	12,38%	31,43%	32,38%	52,38%	27,62%

Table 5.1. Percentage proportions of Likert scale of Q1- Q32 answers of 105 samples

In Q4 is asked to be assessed if the prioritisation of strategic projects in portfolio management is influencing the project management context. This is related with the factor of "Projects Prioritisation" (F1) and how this is influencing the other processes (means operating plans, portfolio, program and project management) of the project management context.

In Q5 is asked to be assessed if the upper management consensus and commitment is influencing directly a strategic project implementation.

In Q6 is asked to be assessed if the organisational complexity is influencing a strategic project implementation.

In Q7 is asked to be assessed if the organisational culture is influencing a strategic project implementation.

In Q8 is asked to be assessed if the organisational Politics are influencing a strategic project implementation.

In Q9 is asked to be assessed if the development of organisational knowledge management has a positive influence to strategic projects implementation.

In Q10 is asked to be assessed if the Human Factor has a very critical influence to strategic projects implementation and in project management context.

In Q11 is asked to be assessed if the project team members' work load due to other projects or activities has a negative influence to strategic project implementation.

In Q12 is asked to be assessed if the quality in organisational processes and functions is affecting positively the project management context.

In Q13 is asked to be assessed if the organisational bureaucracy is an extremely important factor influencing negatively the strategic projects implementation.

In Q14 is asked to be assessed if the appropriate support from other organisational functional and operational processes has a positive influence in strategic projects implementation.

In Q15 is asked to be assessed if the external environment influences are affecting the implementation of a strategic project.

In Q16 is asked if to be assessed the organisational ethical factors are affecting the strategic projects implementation.

In Q17 is asked to be assessed if the absence of organisational training is affecting strategic project implementation.

In Q18 is asked to be assessed if the organisational communication is perceived as a critical factor for successful strategic
project implementation.

In Q19 is asked to be assessed if the establishment of an appropriate and qualitative project management process is affecting the implementation of a strategic project.

In Q20 is asked to be assessed if the information Technology support is playing a very important role to the implementation of a strategic project.

In Q21 is asked to be assessed if the stakeholders' influence is perceived as an important factor for the implementation of strategic projects.

In Q22 is asked to be assessed if by using Project Earned Value management method is helping to better implementation of strategic projects.

In Q23 is asked to be assessed if the project's complexity is an important factor influencing its implementation.

In Q24 is asked to be assessed if the dependences between strategic or other projects are affecting their implementation.
In Q25 is asked to be assessed if the flexibility in project management processes is helping to the implementation of strategic projects.

In Q26 is asked to be assessed if there is an extension beyond the planned time for a strategic project implementation, this is affecting negatively the project management context.

In Q27 is asked to be assessed if the increment of the project cost beyond the planned budget is affecting the strategic projects implementation.

In Q28 is asked to be assessed if the quality of the delivered product of a strategic project has affection to the organisation.

In Q29 is asked to be assessed if by using risk management process helps positively to strategic project implementation.

In Q30 is asked to be assessed if the creation of a Project Management Office (PMO) is helping to successful implementation of strategic projects.

In Q31 is asked to be assessed if by having no project management strategy has a negative influence in strategic projects implementation.

In Q32 is asked to be assessed if the organisational project management maturity is perceived as a very important factor for the implementation of strategic projects.

The total percentage of proportions of the 105 samples analysis of Likert scale answers, are illustrated in figure 5.1 by a 3D view presentation.

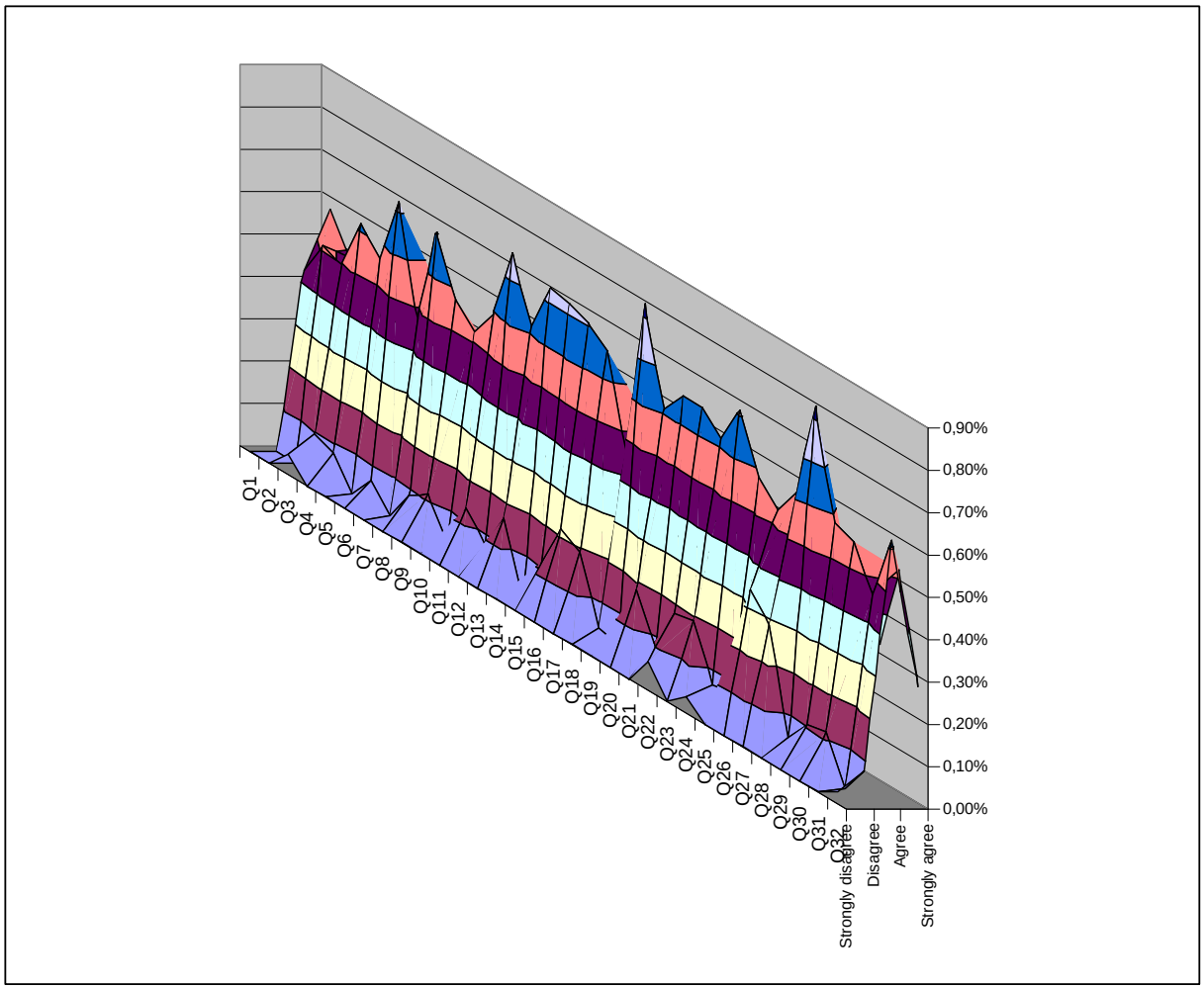

Figure 5.1 3D view presentation of total percentage of Likert scale proportions of the 105 samples answers.

Appendix 5a Statistical analysis tables

Code	PM Context
PMC1	Organisational Strategy
PMC2	Operating plans
PMC3	Portfolio management
PMC4	Program management
PMC5	Project management

Table 5a.1 Project management context.

PMC1- PMC5 project management context elements

In addition, regarding project management context elements statistical analysis table 5a.11a illustrates the summary statistics of minimum, maximum, mean and standard deviation of PMC1- PMC5. Furthermore, the Coefficients of determination (R^2) of PMC1- PMC5 are displayed in table 5a.11b and the p-values of PMC1- PMC5 are in table 5a.11c and finally the correlation matrix (Pearson) of PMC1- PMC5 are in table 5a.11d.

	Implementation path used
S1	Through Portfolio to program and project management
S2	Through Program and project management
S3	Through Portfolio and project management
S4	Direct through Project Management
S5	By using other methodology

Table 5a.2 Project management implementation path.

Years of experience in PM
1. 1-5
2. 5-15
3. 15-25
4. More than 25 years

Table 5a.3 Years of experience in Project management.

Codes	Position in organisation
1.PM	1.Project Management
2.BM	2.Business management
3. Other	3. Other

Table 5a.4 Position in organisation

STATISTICS	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Valid	105	105	105	105	105	105	105	105	105	105
Missing	0	0	0	0	0	0	0	0	0	0
Mean	3.57	3.49	3.17	3.23	3.42	3.14	3.5	3.12	3.2	3.42
Std. Error of Mean	0.049	0.049	0.077	0.056	0.05	0.05	0.051	0.052	0.061	0.054
Median	4	3	3	3	3	3	4	3	3	3
Mode	4	3	3	3	3	3	4	3	3	3
Std. Deviation	0.497	0.502	0.79	0.576	0.515	0.508	0.521	0.532	0.626	0.551
Variance	0.247	0.252	0.624	0.332	0.265	0.258	0.272	0.283	0.392	0.303
Skewness	-0.29	0.058	-0.91	-0.05	0.117	0.238	-0.23	0.123	-0.17	-0.2
Std. Error of Skewness	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236
Kurtosis	-1.95	-2.04	0.78	-0.34	-1.49	0.554	-1.48	0.399	-0.54	-0.96
Std. Error of Kurtosis	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
Range	1	1	3	2	2	2	2	2	2	2
Minimum	3	3	1	2	2	2	2	2	2	2
Maximum	4	4	4	4	4	4	4	4	4	4

STATISTICS	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Valid	105	105	105	105	105	105	105	105	105	105	105
Missing	0	0	0	0	0	0	0	0	0	0	0
Mean	3.14	3.09	3.06	3.27	3.05	2.86	2.95	3.47	3.11	3.03	3.18
Std. Error of Mean	0.061	0.047	0.06	0.043	0.051	0.051	0.056	0.056	0.039	0.061	0.054
Median	3	3	3	3	3	3	3	4	3	3	3
Mode	3	3	3	3	3	3	3	4	3	3	3
Std. Deviation	0.627	0.483	0.618	0.444	0.526	0.527	0.578	0.573	0.4	0.627	0.551
Variance	0.393	0.233	0.381	0.197	0.277	0.277	0.334	0.328	0.16	0.393	0.303
Skewness	-0.11	0.236	-0.03	1.071	0.059	-0.16	-0	-0.49	0.942	-0.02	0.073
Std. Error of Skewness	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236
Kurtosis	-0.48	1.228	-0.33	-0.87	0.699	0.364	0.059	-0.72	2.439	-0.4	-0.02
Std. Error of Kurtosis	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
Range	2	2	2	1	2	2	2	2	2	2	2
Minimum	2	2	2	3	2	2	2	2	2	2	2
Maximum	4	4	4	4	4	4	4	4	4	4	4

STATISTICS	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32
Valid	105	105	105	105	105	105	105	105	105	105	105
Missing	0	0	0	0	0	0	0	0	0	0	0
Mean	2.77	3	3.04	3.27	2.78	2.83	3.08	3.21	3.21	3.51	3.14
Std. Error of Mean	0.068	0.061	0.062	0.058	0.063	0.06	0.04	0.06	0.062	0.051	0.066
Median	3	3	3	3	3	3	3	3	3	4	3
Mode	3	3	3	3	3	3	3	3	3	4	3

Std. Deviation	0.697	0.62	0.634	0.593	0.65	0.612	0.409	0.615	0.631	0.521	0.671
Variance	0.486	0.385	0.402	0.351	0.423	0.374	0.167	0.379	0.398	0.271	0.451
Skewness	-0.87	0	-0.95	-0.15	0.249	0.109	0.57	-0.16	-0.2	-0.27	-0.76
Std. Error of Skewness	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236
Kurtosis	1.072	-0.33	2.788	-0.5	-0.68	-0.41	2.805	-0.49	-0.58	-1.46	1.557
Std. Error of Kurtosis	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
Range	3	2	3	2	2	2	2	2	2	2	3
Minimum	1	2	1	2	2	2	2	2	2	2	1
Maximum	4	4	4	4	4	4	4	4	4	4	4

Table 5a.5a Summary descriptive statistics of data of Q1-Q32 answers

		N	%
Cases	Valid	105	100.0
	Excluded[a]	0	.0
	Total	105	100.0

a. Listwise deletion based on all variables in the procedure.

Table 5a.5b Case Processing Summary

Descriptive Statistics

Questions	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles			95% Confidence Interval of the Difference		Std. Error Mean
						25th	50th (Median)	75th	Lower	Upper	
Q1	105	3.57	.497	3	4	3.00	4.00	4.00	3.48	3.67	.049
Q2	105	3.49	.502	3	4	3.00	3.00	4.00	3.39	3.58	.049
Q3	105	3.17	.790	1	4	3.00	3.00	4.00	3.02	3.32	.077
Q4	105	3.23	.576	2	4	3.00	3.00	4.00	3.12	3.34	.056
Q5	105	3.42	.515	2	4	3.00	3.00	4.00	3.32	3.52	.050
Q6	105	3.14	.508	2	4	3.00	3.00	3.00	3.04	3.24	.050
Q7	105	3.50	.521	2	4	3.00	4.00	4.00	3.40	3.61	.051
Q8	105	3.12	.532	2	4	3.00	3.00	3.00	3.02	3.23	.052
Q9	105	3.20	.626	2	4	3.00	3.00	4.00	3.08	3.32	.061
Q10	105	3.42	.551	2	4	3.00	3.00	4.00	3.31	3.53	.054

Q11	105	3.14	.627	2	4	3.00	3.00	4.00	3.02	3.26	.061
Q12	105	3.09	.483	2	4	3.00	3.00	3.00	2.99	3.18	.047
Q13	105	3.06	.618	2	4	3.00	3.00	3.00	2.94	3.18	.060
Q14	105	3.27	.444	3	4	3.00	3.00	4.00	3.18	3.35	.043
Q15	105	3.05	.526	2	4	3.00	3.00	3.00	2.95	3.15	.051
Q16	105	2.86	.527	2	4	3.00	3.00	3.00	2.76	2.96	.051
Q17	105	2.95	.578	2	4	3.00	3.00	3.00	2.84	3.06	.056
Q18	105	3.47	.573	2	4	3.00	4.00	4.00	3.36	3.58	.056
Q19	105	3.11	.400	2	4	3.00	3.00	3.00	3.04	3.19	.039
Q20	105	3.03	.627	2	4	3.00	3.00	3.00	2.91	3.15	.061
Q21	105	3.18	.551	2	4	3.00	3.00	4.00	3.07	3.29	.054
Q22	105	2.77	.697	1	4	2.50	3.00	3.00	2.64	2.91	.068
Q23	105	3.00	.620	2	4	3.00	3.00	3.00	2.88	3.12	.061
Q24	105	3.04	.634	1	4	3.00	3.00	3.00	2.92	3.16	.062
Q25	105	3.27	.593	2	4	3.00	3.00	4.00	3.15	3.38	.058
Q26	105	2.78	.650	2	4	2.00	3.00	3.00	2.66	2.91	.063
Q27	105	2.83	.612	2	4	2.00	3.00	3.00	2.71	2.95	.060
Q28	105	3.08	.409	2	4	3.00	3.00	3.00	3.00	3.16	.040
Q29	105	3.21	.615	2	4	3.00	3.00	4.00	3.09	3.33	.060
Q30	105	3.21	.631	2	4	3.00	3.00	4.00	3.09	3.33	.062
Q31	105	3.51	.521	2	4	3.00	4.00	4.00	3.41	3.62	.051
Q32	105	3.14	.671	1	4	3.00	3.00	4.00	3.01	3.27	.066

Table 5a.6 Summary statistics of analysis of answers of Q1 – Q32 answers

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
Chi-Square	2.143[a]	.086[a]	57.781[b]	46.800[c]	52.343[c]	75.257[c]	49.771[c]	67.600[c]	33.086[c]	44.800[c]	34.457[c]
df	1	1	3	2	2	2	2	2	2	2	2
Asymp. Sig.	.143	.770	.000	.000	.000	.000	.000	.000	.000	.000	.000

	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Chi-Square	87.943[c]	39.086[c]	22.867[a]	72.400[c]	68.400[c]	52.857[c]	41.543[c]	1.179E2	36.171[c]	57.657[c]	1.004E2
df	2	2	1	2	2	2	2	2	2	2	3
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32
Chi-Square	38.571[c]	1.255E2	40.171[c]	26.457[c]	38.229[c]	1.168E2	35.886[c]	31.600[c]	50.057[c]	90.771[b]
df	2	3	2	2	2	2	2	2	2	3
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 52.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.3.

c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 35.0.

Table 5a.7. Chi-square test for difference between the Q1 – Q32 answers

	Range	**Maximum / Minimum**	**Variance**	**N of Items (Q1-Q32)**
Item Means	.800	1.289	.046	32
Item Variances	.464	3.904	.009	32
Inter-Item Covariances	.421	-1.187	.003	32
Inter-Item Correlations	1.065	-1.167	.026	32

Table 5a.8. Summary Items Statistics of range and variance of the Q1- Q32

Questions	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Questions	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	.090	.509	**Q17**	.202	.494
Q2	.081	.510	**Q18**	.490	.454
Q3	.148	.502	**Q19**	-.049	.521
Q4	.060	.513	**Q20**	.263	.484
Q5	.146	.502	**Q21**	-.133	.537
Q6	-.205	.542	**Q22**	.309	.475
Q7	.101	.508	**Q23**	-.098	.536
Q8	-.029	.524	**Q24**	.164	.499
Q9	.109	.507	**Q25**	.262	.486
Q10	.196	.496	**Q26**	.174	.498
Q11	.101	.508	**Q27**	.161	.500
Q12	.192	.498	**Q28**	.319	.487
Q13	.127	.505	**Q29**	.031	.518
Q14	.120	.506	**Q30**	.275	.482
Q15	-.374	.562	**Q31**	.378	.473
Q16	.039	.515	**Q32**	.386	.463

Table 5a.9. Corrected Item-Total Correlation and Cronbach's Alpha

#	Influencing factors	PMC1 %	PMC2 %	PMC3 %	PMC4 %	PMC5 %	Average %
F1	Projects Prioritisation	52,38	63,81	80,95	65,71	43,81	**61,33**
F2	Upper management consensus and commitment	81,90	69,52	86,67	81,90	43,81	**72,76**
F3	Organisational culture	79,05	80,95	56,19	75,24	64,76	**71,24**
F4	Organisational politics	35,24	53,33	45,71	49,52	22,86	**41,33**
F5	Organisational knowledge management	25,71	36,19	26,67	47,62	30,48	**33,33**
F6	Human Factor	40,00	67,62	61,90	60,00	54,29	**56,76**
F7	Organisational quality	15,24	39,05	42,86	19,05	34,29	**30,10**
F8	Organisational bureaucracy	30,48	38,10	43,81	49,52	33,33	**39,05**

F9	Organisational complexity	36,19	56,19	33,33	37,14	25,71	**37,71**
F10	Operational processes support	0,00	40,00	30,48	40,95	30,48	**28,38**
F11	External environment	28,57	28,57	21,90	29,52	28,57	**27,43**
F12	Ethical factors	10,48	7,62	6,67	8,57	11,43	**8,95**
F13	Organisational Training	0,95	6,67	12,38	14,29	8,57	**8,57**
F14	Organisational communication	40,00	35,24	40,95	59,05	35,24	**42,10**
F15	Project team members work load	25,71	35,24	13,33	30,48	35,24	**28,00**
F16	Dependences between strategic or other projects	19,05	18,10	33,33	22,86	21,90	**23,05**
F17	Project management process	30,48	16,19	24,76	23,81	44,76	**28,00**
F18	Support from Information Technology	5,71	7,62	15,24	20,00	9,52	**11,62**
F19	Stakeholders	46,67	41,90	40,95	40,95	54,29	**44,95**
F20	Project time	23,81	18,10	10,48	29,52	37,14	**23,81**
F21	Project cost	27,62	22,86	11,43	29,52	34,29	**25,14**
F22	Project's delivered product quality	9,52	18,10	17,14	19,05	38,10	**20,38**
F23	Project complexity	14,29	23,81	22,86	31,43	40,95	**26,67**
F24	Project Earned Value management	13,33	19,05	7,62	15,24	22,86	**15,62**
F25	Project management flexibility	27,62	21,90	23,81	20,95	42,86	**27,43**
F26	Risk management	31,43	43,81	28,57	44,76	31,43	**36,00**
F27	Project Management Office	18,10	22,86	36,19	24,76	30,48	**26,48**
F28	Project management strategy	33,33	21,90	41,90	52,38	23,81	**34,67**
F29	Organisational maturity on project management	28,57	41,90	39,05	40,95	16,19	**33,33**

Table 5a.10. Influence factors assessment per project management context process.

Variable	Minimum	Maximum	Mean	Std. deviation
PMC1 %	0,000	81,900	28,670	19,212
PMC2 %	6,670	80,950	34,352	19,609
PMC3 %	6,670	86,670	33,004	20,102
PMC4 %	8,570	81,900	37,405	18,743
PMC5 %	8,570	64,760	32,809	13,238

Table 5a.11a. Summary statistics of minimum, maximum, mean and standard deviation of PMC1- PMC5.

Variables	PMC1 %	PMC2 %	PMC3 %	PMC4 %	PMC5 %
PMC1 %	1	0,632	0,584	0,709	0,426

PMC2 %	0,632	1	0,664	0,724	0,358
PMC3 %	0,584	0,664	1	0,708	0,238
PMC4 %	0,709	0,724	0,708	1	0,289
PMC5 %	0,426	0,358	0,238	0,289	1

Table 5a.11b.. Coefficients of determination (R^2) of PMC1- PMC5.

Variables	PMC1 %	PMC2 %	PMC3 %	PMC4 %	PMC5 %
PMC1 %	0	< 0,0001	< 0,0001	< 0,0001	0,000
PMC2 %	< 0,0001	0	< 0,0001	< 0,0001	0,001
PMC3 %	< 0,0001	< 0,0001	0	< 0,0001	0,007
PMC4 %	< 0,0001	< 0,0001	< 0,0001	0	0,003
PMC5 %	0,000	0,001	0,007	0,003	0

Table 5a.11c. p-values of PMC1- PMC5.

Variables	PMC1 %	PMC2 %	PMC3 %	PMC4 %	PMC5 %
PMC1 %	1	0,795	0,764	0,842	0,652
PMC2 %	0,795	1	0,815	0,851	0,598
PMC3 %	0,764	0,815	1	0,841	0,488
PMC4 %	0,842	0,851	0,841	1	0,538
PMC5 %	0,652	0,598	0,488	0,538	1

Table5a.11d. Correlation matrix (Pearson) of PMC1- PMC5.

#	Influencing factors	Strongly disagree	Disagree	Agree	Strongly agree	Average Positive Scores %
F1	Projects Prioritisation	0	0	65	32	92,38
F2	Upper management consensus and commitment	0	0	59	45	99,05
F3	Organisational culture	-5	-10	76	22	79,05
F4	Organisational politics	0	-8	50	54	91,43
F5	Organisational knowledge management	0	-1	74	22	90,48
F6	Human Factor	0	-7	60	33	81,90
F7	Organisational quality	0	-1	55	47	96,19
F8	Organisational bureaucracy	0	-9	62	29	78,10
F9	Organisational complexity	0	-12	80	17	80,95
F10	Operational processes support	0	-3	65	23	80,95
F11	External environment	0	-14	77	28	86,67
F12	Ethical factors	0	-8	76	17	80,95
F13	Organisational Training	0	-17	74	8	61,90

F14	Organisational communication	0	0	70	15	80,95
F15	Project team members work load	0	-12	48	53	84,76
F16	Dependences between strategic or other projects	0	-23	87	15	75,24
F17	Project management process	0	-20	64	22	62,86
F18	Support from Information Technology	0	-4	70	27	88,57
F19	Stakeholders	0	-3	70	9	72,38
F20	Project time	0	-19	65	20	62,86
F21	Project cost	0	-8	75	19	81,90
F22	Project's delivered product quality	-7	-19	61	36	67,62
F23	Project complexity	0	-20	56	13	46,67
F24	Project Earned Value management	-4	-7	63	12	60,95
F25	Project management flexibility	0	-8	87	13	87,62
F26	Risk management	0	-36	61	33	55,24
F27	Project Management Office	0	-30	59	34	60,00
F28	Project management strategy	0	-5	49	55	94,29
F29	Organisational maturity on project management	0	-11	65	29	79,05

Table 5a.12. Average Positive Scores % of influence factors

Codes	**Most Important Factors**	**Low**	**Middle**	**High**
HF	Human Factor	0,00%	10,48%	89,52%
OQ	Organisational Quality	5,71%	46,67%	47,62%
ITS	IT Support	12,38%	65,71%	21,90%
OCm	Organisational Communication	0,00%	7,62%	92,38%
PMS	PM Strategy	0,00%	12,38%	87,62%
OPMM	Organisational Project Management Maturity	11,43%	38,10%	50,48%

Table 5a.13. Percentage proportions of influence of most important factors

Statistics	HF	OQ	ITS	Ocm	PMS	OPMM
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	2.90	2.42	2.10	2.92	2.88	2.39
Std. Error of Mean	.030	.059	.057	.026	.032	.067
Median	3.00	2.00	2.00	3.00	3.00	3.00

Mode	3	3	2	3	3	3
Std. Deviation	.308	.601	.581	.267	.331	.686
Variance	.095	.361	.337	.071	.110	.471
Skewness	-2.619	-.494	-.005	-3.241	-2.318	-.686
Std. Error of Skewness	.236	.236	.236	.236	.236	.236
Kurtosis	4.952	-.626	-.028	8.672	3.436	-.651
Std. Error of Kurtosis	.467	.467	.467	.467	.467	.467
Range	1	2	2	1	1	2
Minimum	2	1	1	2	2	1
Maximum	3	3	3	3	3	3

Table 5a.13a. Summary statistics of the six important factors

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.613	.624	6

Table 5a.13b. Reliability Statistics Cronbach's Alpha of the six important factors

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HF	12.70	2.499	.371	.254	.575
OQ	13.18	2.053	.313	.232	.591
ITS	13.50	2.002	.374	.344	.559
Ocm	12.68	2.702	.206	.254	.615
PMS	12.72	2.433	.399	.510	.564
OPMM	13.21	1.571	.530	.499	.475

Table 5.13c. Item-Total Statistics of the six important factors

Variance	Std. Deviation	N of Items
2.954	1.719	6

Table 5a.13d. Scale Statistics of the six important factors

Experience	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
1-5 Years	1,31%	1,39%	1,36%	1,83%	1,84%	1,00%	1,49%	1,09%	1,25%	1,25%
6-15 Years	3,14%	2,96%	3,07%	3,24%	4,41%	2,99%	4,12%	3,51%	2,94%	1,50%
16-25 Years	17,44%	16,89%	18,04%	19,31%	16,04%	19,83%	16,97%	19,42%	21,16%	19,97%
> 25 Years	8,43%	8,90%	8,02%	5,79%	6,04%	7,77%	6,69%	6,97%	6,35%	9,59%

Experience	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
1-5 Years	1,20%	0,00%	1,38%	1,51%	0,76%	1,23%	0,93%	1,42%	1,15%	0,79%
6-15 Years	3,45%	2,92%	4,19%	2,25%	1,52%	1,42%	1,52%	1,41%	2,03%	2,33%
16-25 Years	14,84%	15,16%	18,62%	18,39%	22,52%	20,78%	17,10%	24,04%	16,16%	18,10%
> 25 Years	9,92%	13,37%	5,71%	8,79%	8,94%	9,21%	12,24%	6,56%	11,50%	10,51%

Experience	F21	F22	F23	F24	F25	F26	F27	F28	F29
1-5 Years	1,13%	0,81%	1,33%	0,15%	1,03%	0,66%	1,16%	1,43%	1,27%
6-15 Years	2,73%	2,24%	1,96%	3,34%	1,79%	1,00%	1,85%	1,41%	1,86%
16-25 Years	17,78%	20,36%	19,46%	13,29%	20,08%	20,62%	18,69%	15,20%	18,20%
> 25 Years	9,31%	9,08%	8,98%	13,59%	9,52%	11,34%	10,07%	12,56%	10,12%

Table 5a.14. Percentage proportions of answers of assessment of influence factors (F1- F29) in reflection to the total percentage of years of experience in project management categories

Position	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
1. Project Management	28,49%	28,62%	27,81%	23,35%	28,34%	26,85%	28,69%	27,32%	21,28%	17,90%
2. Business Management	13,71%	13,64%	13,45%	15,01%	12,20%	14,45%	13,29%	15,01%	19,37%	21,37%
3. Other	0,91%	0,91%	1,12%	1,54%	1,38%	1,02%	0,99%	0,77%	0,69%	0,77%

Position	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
1. Project Management	29,63%	44,26%	22,52%	22,93%	21,77%	18,51%	23,58%	24,48%	26,67%	33,71%
2. Business Management	11,81%	3,08%	15,28%	17,19%	19,20%	21,24%	17,73%	17,21%	15,49%	11,00%
3. Other	1,24%	0,89%	1,63%	1,00%	0,64%	0,69%	0,71%	0,69%	0,75%	0,67%

Position	F21	F22	F23	F24	F25	F26	F27	F28	F29
1. Project Management	33,54%	23,43%	21,33%	39,67%	21,48%	25,68%	28,01%	28,13%	25,90%
2. Business Management	11,24%	18,94%	19,90%	7,06%	19,85%	16,28%	14,84%	13,72%	14,06%
3. Other	0,63%	0,39%	0,52%	0,64%	0,51%	0,72%	0,68%	0,98%	1,32%

Table 5a.15. Percentage proportions of answers of assessment of influence factors (F1- F29) in reflection to the total percentage of years of position in organisation categories

#	Influencing factors	Average Positive score percentage proportions of	Average percentage scores of influence

		Factors in questions (4-32) (%)	factors assessment (F1-F29) (%)
F1	Projects Prioritisation	**92,38**	**61,33**
F2	Upper management consensus and commitment	**99,05**	**72,76**
F3	Organisational culture	**79,05**	**71,24**
F4	Organisational politics	**91,43**	**41,33**
F5	Organisational knowledge management	**90,48**	**33,33**
F6	Human Factor	**81,90**	**56,76**
F7	Organisational quality	**96,19**	**30,10**
F8	Organisational bureaucracy	**78,10**	**39,05**
F9	Organisational complexity	**80,95**	**37,71**
F10	Operational processes support	**80,95**	**28,38**
F11	External environment	**86,67**	**27,43**
F12	Ethical factors	**80,95**	**8,95**
F13	Organisational Training	**61,90**	**8,57**
F14	Organisational communication	**80,95**	**42,10**
F15	Project team members work load	**84,76**	**28,00**
F16	Dependences between strategic or other projects	**75,24**	**23,05**
F17	Project management process	**62,86**	**28,00**
F18	Support from Information Technology	**88,57**	**11,62**
F19	Stakeholders	**72,38**	**44,95**
F20	Project time	**62,86**	**23,81**
F21	Project cost	**81,90**	**25,14**
F22	Project's delivered product quality	**67,62**	**20,38**
F23	Project complexity	**46,67**	**26,67**
F24	Project Earned Value management	**60,95**	**15,62**
F25	Project management flexibility	**87,62**	**27,43**
F26	Risk management	**55,24**	**36,00**
F27	Project Management Office	**60,00**	**26,48**
F28	Project management strategy	**94,29**	**34,67**
F29	Organisational maturity on project management	**79,05**	**33,33**

Table 5a.16. Comparison of average percentage of positive answers in questions Q4-Q32 in reflection with influence factors (F1-F29), assessment in PM context.

D	0,862
p-value	< 0,0001
alpha	0,05

The p-value is computed using an exact method.
Test interpretation:
H0: The distribution of the two samples is not significantly different.
Ha: The distributions of the two samples are significantly different.
As the computed p-value is lower than the significance level alpha=0,05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H0 while it is true is lower than 0,01%.

Table 5a.17. Two-sample Kolmogorov-Smirnov test / Two-tailed test

N+	29
Expected value	14,500
Variance (N+)	7,250
p-value (Two-tailed)	< 0,0001
alpha	0,05

The p-value is computed using an exact method.

Table 5a.18. Sign test / Two-tailed test

V	435,000
Expected value	217,500
Variance (V)	2138,500
p-value (Two-tailed)	< 0,0001
alpha	0,05

The exact p-value could not be computed. An approximation has been used to compute the p-value.
Test interpretation:
H0: The distribution of the two samples is not significantly different.
Ha: The distributions of the two samples are significantly different.
As the computed p-value is lower than the significance level alpha=0,05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H0 while it is true is lower than 0,01%.

Table 5a.18a. Wilcoxon signed-rank test / Two-tailed test

Variables	Aver F-Q (4-32)	Aver F1-F29
Average Positive Scores Factors through Questions (4-32)	1	0,377
Average percentage of influence factors assessment (F1-29)	0,377	1
Values are significantly different from 0 with a significance level alpha=0,05		
p-values		

Variables	Aver F-Q (4-32)	Aver F1-F29
Average Positive Scores Factors through Questions (4-32)	0	0,044
Average percentage of influence factors assessment (F1-29)	0,044	0
Values are significantly different from 0 with a significance level alpha=0,05		

Table 5a.19. Correlation matrix (Spearman) and p-vaues of average percentage of influence factors assessment (F1-F29)/ Average positive percentage of factors assessment through survey questions (Q4-Q32).

	Influencing factors (Sorted by the most positive sore average %)	Total average influence score %
F2	Upper management consensus and commitment	**85,91**
F1	Projects Prioritisation	**76,86**
F3	Organisational culture	**75,15**
F6	Human Factor	**69,33**
F4	Organisational politics	**66,38**
F28	Project management strategy	**64,48**
F7	Organisational quality	**63,15**
F5	Organisational knowledge management	**61,91**
F14	Organisational communication	**61,53**
F9	Organisational complexity	**59,33**
F19	Stakeholders	**58,67**
F8	Organisational bureaucracy	**58,58**
F25	Project management flexibility	**57,53**
F11	External environment	**57,05**
F15	Project team members work load	**56,38**
F29	Organisational maturity on project management	**56,19**
F10	Operational processes support	**54,67**
F21	Project cost	**53,52**
F18	Support from Information Technology	**50,10**
F16	Dependences between strategic or other projects	**49,15**
F26	Risk management	**45,62**
F17	Project management process	**45,43**
F12	Ethical factors	**44,95**
F22	Project's delivered product quality	**44,00**
F20	Project time	**43,34**
F27	Project Management Office	**43,24**
F24	Project Earned Value management	**38,29**
F23	Project complexity	**36,67**
F13	Organisational Training	**35,24**

Table 5a.20. Descending sorting of average percentage scores of influence factors assessment (Q4-Q32 and F1-F29).

Variable	Observations	Minimum	Maximum	Mean	Std. deviation
Average influence score %	29	35,240	85,910	55,609	12,264

Table 5a.20a. Summary statistics of average percentage scores of influence factors assessment (Q4-Q32 and F1-F29).

Lower bound [	Upper bound [	Frequency	Relative frequency	Density
30	35,691	1	0,034	0,006
35,691	41,382	2	0,069	0,012
41,382	47,073	6	0,207	0,036
47,073	52,764	2	0,069	0,012
52,764	58,455	6	0,207	0,036
58,455	64,146	6	0,207	0,036
64,146	69,837	3	0,103	0,018
69,837	75,528	1	0,034	0,006
75,528	81,219	1	0,034	0,006
81,219	86,91	1	0,034	0,006

Table 5a.21. Frequency table of average percentage scores of influence factors assessment (Q4-Q32 and F1-F29).

S1.Through Portfolio to program and project management			
SCALE	Q1	Q2	Q3
1. Strongly disagree	0,00%	0,00%	23,08%
2. Disagree	0,00%	0,00%	7,69%
3. Agree	38,46%	15,38%	30,77%
4. Strongly agree	61,54%	84,62%	38,46%

Table 5a.22a. Percentage proportions of assessment scores of implementation path used (S1) through Portfolio to program and project management in relation with Q1-Q3 answers.

S2. Through Program and project management			
SCALE	Q1	Q2	Q3
1. Strongly disagree	0,00%	0,00%	0,00%
2. Disagree	0,00%	0,00%	10,53%
3. Agree	57,89%	78,95%	73,68%
4. Strongly agree	42,11%	21,05%	15,79%

Table 5a.22b. Percentage proportions of assessment scores of implementation path used (S2) through program and project management in relation with Q1-Q3 answers.

S3. Through Portfolio and project management			
SCALE	Q1	Q2	Q3
1. Strongly disagree	0,00%	0,00%	2,86%
2. Disagree	0,00%	0,00%	14,29%
3. Agree	40,00%	57,14%	48,57%
4. Strongly agree	60,00%	42,86%	34,29%

Table 5a.22c Percentage proportions of assessment scores of implementation path used (S3) through portfolio and project management in relation with Q1-Q3 answers.

S4. Direct through Project Management			
SCALE	Q1	Q2	Q3
1. Strongly disagree	0,00%	0,00%	3,33%
2. Disagree	0,00%	0,00%	3,33%
3. Agree	40,00%	43,33%	46,67%
4. Strongly agree	60,00%	56,67%	46,67%

Table 5a.22d. Percentage proportions of assessment scores of implementation path used (S4) direct through Project Management in relation with Q1-Q3 answers.

S5. By using other methodology			
SCALE	Q1	Q2	Q3
1. Strongly disagree	0,00%	0,00%	0,00%
2. Disagree	0,00%	0,00%	12,50%
3. Agree	37,50%	50,00%	37,50%
4. Strongly agree	62,50%	50,00%	50,00%

Table 5a.22e. Percentage proportions of assessment scores of implementation path (S5) by using other methodology in relation with Q1-Q3 answers.

S1. Through Portfolio to program and project management	**S2.** Through Program and project management
Proportions of Influencing factors (F1-29) (%)	**Proportions of Influencing factors (F1-29) (%)**

	Organisational Strategy	Operating plans	Portfolio management	Program management	Project management	Organisational Strategy	Operating plans	Portfolio management	Program management	Project management
F1	46,15	30,77	61,54	61,54	84,62	46,15	30,77	61,54	61,54	84,62
F2	100,00	38,46	100,00	100,00	46,15	100,00	38,46	100,00	100,00	46,15
F3	84,62	84,62	46,15	92,31	84,62	84,62	84,62	46,15	92,31	84,62
F4	30,77	46,15	38,46	30,77	0,00	30,77	46,15	38,46	30,77	0,00
F5	30,77	30,77	7,69	23,08	23,08	30,77	30,77	7,69	23,08	23,08
F6	23,08	76,92	46,15	38,46	30,77	23,08	76,92	46,15	38,46	30,77
F7	7,69	23,08	30,77	0,00	7,69	7,69	23,08	30,77	0,00	7,69
F8	15,38	53,85	46,15	46,15	30,77	15,38	53,85	46,15	46,15	30,77
F9	23,08	61,54	23,08	30,77	23,08	23,08	61,54	23,08	30,77	23,08
F10	0,00	38,46	23,08	30,77	38,46	0,00	38,46	23,08	30,77	38,46
F11	15,38	7,69	0,00	30,77	30,77	15,38	7,69	0,00	30,77	30,77
F12	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
F13	7,69	0,00	0,00	7,69	0,00	7,69	0,00	0,00	7,69	0,00
F14	61,54	46,15	38,46	76,92	46,15	61,54	46,15	38,46	76,92	46,15
F15	30,77	30,77	15,38	53,85	30,77	30,77	30,77	15,38	53,85	30,77
F16	23,08	7,69	38,46	46,15	23,08	23,08	7,69	38,46	46,15	23,08
F17	30,77	15,38	15,38	23,08	38,46	30,77	15,38	15,38	23,08	38,46
F18	0,00	0,00	15,38	7,69	0,00	0,00	0,00	15,38	7,69	0,00
F19	46,15	23,08	69,23	61,54	53,85	46,15	23,08	69,23	61,54	53,85
F20	7,69	7,69	0,00	7,69	7,69	7,69	7,69	0,00	7,69	7,69
F21	7,69	7,69	0,00	7,69	7,69	7,69	7,69	0,00	7,69	7,69
F22	0,00	30,77	0,00	7,69	30,77	0,00	30,77	0,00	7,69	30,77
F23	0,00	0,00	23,08	46,15	38,46	0,00	0,00	23,08	46,15	38,46
F24	7,69	7,69	0,00	7,69	7,69	7,69	7,69	0,00	7,69	7,69
F25	38,46	38,46	23,08	53,85	46,15	38,46	38,46	23,08	53,85	46,15
F26	53,85	46,15	23,08	53,85	38,46	53,85	46,15	23,08	53,85	38,46
F27	23,08	15,38	23,08	61,54	38,46	23,08	15,38	23,08	61,54	38,46
F28	53,85	15,38	53,85	61,54	38,46	53,85	15,38	53,85	61,54	38,46

F29	15,38	23,08	30,77	53,85	15,38	15,38	23,08	30,77	53,85	15,38

Table 5a.23 Analysis of percentage proportions of influence factors (F1- F29) assessment per implementation path used (S1- S5) and per project management context (PMC1- PMC5).

	S3. Through Portfolio and project management					**S4.** Direct through Project Management					**S5.** By using other methodology				
	Proportions of Influencing factors (F 1-29) (%)					**Proportions of Influencing factors (F 1-29) (%)**					**Proportions of Influencing factors (F=1-29) (%)**				
	Organisational Strategy	**Operating plans**	**Portfolio management**	**Program management**	**Project management**	**Organisational Strategy**	**Operating plans**	**Portfolio management**	**Program management**	**Project management**	**Organisational Strategy**	**Operating plans**	**Portfolio management**	**Program management**	**Project management**
F1	68,57	62,86	82,86	80,00	60,00	40,00	76,67	93,33	70,00	26,67	50,00	75,00	75,00	37,50	0,00
F2	88,57	80,00	94,29	94,29	60,00	66,67	76,67	80,00	76,67	33,33	75,00	50,00	75,00	62,50	0,00
F3	82,86	88,57	88,57	94,29	82,86	83,33	73,33	36,67	56,67	46,67	50,00	87,50	37,50	62,50	37,50
F4	57,14	71,43	74,29	82,86	37,14	6,67	26,67	36,67	20,00	3,33	12,50	50,00	25,00	50,00	37,50
F5	25,71	51,43	57,14	68,57	57,14	26,67	26,67	10,00	30,00	3,33	25,00	12,50	12,50	50,00	0,00
F6	40,00	60,00	71,43	60,00	62,86	50,00	76,67	76,67	73,33	53,33	37,50	50,00	12,50	25,00	25,00
F7	11,43	54,29	48,57	20,00	45,71	10,00	26,67	53,33	30,00	30,00	12,50	50,00	12,50	0,00	0,00
F8	22,86	37,14	42,86	57,14	51,43	36,67	30,00	50,00	40,00	13,33	50,00	50,00	12,50	37,50	0,00
F9	51,43	65,71	37,14	57,14	34,29	26,67	40,00	30,00	23,33	13,33	37,50	62,50	50,00	37,50	12,50
F10	0,00	40,00	28,57	40,00	40,00	0,00	36,67	33,33	43,33	23,33	0,00	75,00	37,50	62,50	12,50
F11	31,43	34,29	28,57	42,86	37,14	26,67	26,67	16,67	20,00	23,33	37,50	12,50	25,00	12,50	12,50
F12	14,29	2,86	0,00	5,71	5,71	16,67	13,33	13,33	13,33	16,67	0,00	0,00	0,00	0,00	0,00
F13	0,00	2,86	17,14	22,86	2,86	0,00	13,33	16,67	6,67	10,00	0,00	0,00	0,00	25,00	0,00
F14	34,29	25,71	48,57	57,14	48,57	40,00	60,00	33,33	66,67	26,67	25,00	12,50	37,50	50,00	12,50
F15	28,57	37,14	25,71	22,86	37,14	33,33	53,33	3,33	43,33	30,00	12,50	12,50	12,50	12,50	25,00
F16	20,00	25,71	37,14	31,43	37,14	16,67	26,67	36,67	16,67	3,33	25,00	12,50	12,50	0,00	12,50
F17	20,00	14,29	17,14	37,14	51,43	50,00	20,00	33,33	16,67	43,33	37,50	25,00	25,00	0,00	37,50
F18	0,00	17,14	22,86	14,29	2,86	3,33	3,33	16,67	13,33	16,67	25,00	0,00	0,00	12,50	0,00

F19	45,71	34,29	40,00	45,71	71,43	53,33	63,33	36,67	46,67	46,67	37,50	37,50	25,00	12,50	12,50
F20	5,71	5,71	0,00	8,57	48,57	40,00	36,67	26,67	46,67	40,00	12,50	0,00	0,00	37,50	0,00
F21	11,43	5,71	0,00	8,57	45,71	53,33	50,00	30,00	46,67	30,00	12,50	0,00	0,00	37,50	0,00
F22	20,00	22,86	22,86	14,29	51,43	3,33	23,33	16,67	33,33	40,00	0,00	0,00	12,50	12,50	0,00
F23	28,57	31,43	34,29	34,29	60,00	3,33	23,33	10,00	36,67	26,67	12,50	25,00	25,00	12,50	12,50
F24	8,57	2,86	2,86	8,57	28,57	26,67	50,00	13,33	30,00	20,00	0,00	0,00	0,00	12,50	0,00
F25	25,71	37,14	28,57	28,57	65,71	26,67	10,00	20,00	10,00	23,33	12,50	25,00	12,50	0,00	0,00
F26	20,00	25,71	20,00	34,29	28,57	46,67	63,33	46,67	56,67	30,00	0,00	37,50	12,50	25,00	12,50
F27	11,43	8,57	11,43	8,57	14,29	26,67	46,67	53,33	30,00	50,00	0,00	12,50	50,00	12,50	0,00
F28	28,57	17,14	25,71	31,43	20,00	36,67	23,33	46,67	60,00	23,33	12,50	37,50	62,50	62,50	12,50
F29	20,00	25,71	25,71	11,43	8,57	36,67	60,00	60,00	60,00	23,33	25,00	50,00	37,50	50,00	0,00

Table 5a.24. Analysis of percentage proportions of influence factors (F1- F29) assessment per implementation path used (S1- S5) and per project management context (PMC1- PMC5).

Total average percentage scores per implementation path					
Factors	**S1.Through Portfolio to program and project management**	**S2.Through Program and project management**	**S3.Through Portfolio and project management**	**S4.Direct through Project Management**	**S5.By using other methodology**
F1	56,92%	52,63%	70,86%	61,33%	47,50%
F2	76,92%	68,42%	83,43%	66,67%	52,50%
F3	78,46%	62,11%	87,43%	59,33%	55,00%
F4	29,23%	45,26%	64,57%	18,67%	35,00%
F5	23,08%	33,68%	52,00%	19,33%	20,00%
F6	43,08%	58,95%	58,86%	66,00%	30,00%
F7	13,85%	36,84%	36,00%	30,00%	15,00%
F8	38,46%	45,26%	42,29%	34,00%	30,00%
F9	32,31%	36,84%	49,14%	26,67%	40,00%
F10	26,15%	25,26%	29,71%	27,33%	37,50%
F11	16,92%	31,58%	34,86%	22,67%	20,00%

F12	0,00%	15,79%	5,71%	14,67%	0,00%
F13	3,08%	11,58%	9,14%	9,33%	5,00%
F14	53,85%	33,68%	42,86%	45,33%	27,50%
F15	32,31%	18,95%	30,29%	32,67%	15,00%
F16	27,69%	15,79%	30,29%	20,00%	12,50%
F17	24,62%	24,21%	28,00%	32,67%	25,00%
F18	4,62%	20,00%	11,43%	10,67%	7,50%
F19	50,77%	37,89%	47,43%	49,33%	25,00%
F20	6,15%	37,89%	13,71%	38,00%	10,00%
F21	6,15%	37,89%	14,29%	42,00%	10,00%
F22	13,85%	15,79%	26,29%	23,33%	5,00%
F23	21,54%	24,21%	37,71%	20,00%	17,50%
F24	6,15%	17,89%	10,29%	28,00%	2,50%
F25	40,00%	23,16%	37,14%	18,00%	10,00%
F26	43,08%	37,89%	25,71%	48,67%	17,50%
F27	32,31%	32,63%	10,86%	41,33%	15,00%
F28	44,62%	40,00%	24,57%	38,00%	37,50%
F29	27,69%	42,11%	18,29%	48,00%	32,50%

Table 5a.25. Analysis of total average percentage proportions of influence factors (F1- F29) assessment per implementation path used (S1- S5)

Factors	**S1**	**Factors**	**S2**	**Factors**	**S3**	**Factors**	**S4**	**Factors**	**S5**
F3	78,46%	**F2**	68,42%	**F3**	87,43%	**F2**	66,67%	**F3**	55,00%
F2	76,92%	**F3**	62,11%	**F2**	83,43%	**F6**	66,00%	**F2**	52,50%
F1	56,92%	**F6**	58,95%	**F1**	70,86%	**F1**	61,33%	**F1**	47,50%
F14	53,85%	**F1**	52,63%	**F4**	64,57%	**F3**	59,33%	**F9**	40,00%
F19	50,77%	**F4**	45,26%	**F6**	58,86%	**F19**	49,33%	**F10**	37,50%
F28	44,62%	**F8**	45,26%	**F5**	52,00%	**F26**	48,67%	**F28**	37,50%
F6	43,08%	**F29**	42,11%	**F9**	49,14%	**F29**	48,00%	**F4**	35,00%
F26	43,08%	**F28**	40,00%	**F19**	47,43%	**F14**	45,33%	**F29**	32,50%
F25	40,00%	**F19**	37,89%	**F14**	42,86%	**F21**	42,00%	**F6**	30,00%
F8	38,46%	**F20**	37,89%	**F8**	42,29%	**F27**	41,33%	**F8**	30,00%
F9	32,31%	**F21**	37,89%	**F23**	37,71%	**F20**	38,00%	**F14**	27,50%
F15	32,31%	**F26**	37,89%	**F25**	37,14%	**F28**	38,00%	**F17**	25,00%
F27	32,31%	**F7**	36,84%	**F7**	36,00%	**F8**	34,00%	**F19**	25,00%
F4	29,23%	**F9**	36,84%	**F11**	34,86%	**F15**	32,67%	**F5**	20,00%
F16	27,69%	**F5**	33,68%	**F15**	30,29%	**F17**	32,67%	**F11**	20,00%
F29	27,69%	**F14**	33,68%	**F16**	30,29%	**F7**	30,00%	**F23**	17,50%

F10	26,15%	**F27**	32,63%	**F10**	29,71%	**F24**	28,00%	**F26**	17,50%
F17	24,62%	**F11**	31,58%	**F17**	28,00%	**F10**	27,33%	**F7**	15,00%
F5	23,08%	**F10**	25,26%	**F22**	26,29%	**F9**	26,67%	**F15**	15,00%
F23	21,54%	**F17**	24,21%	**F26**	25,71%	**F22**	23,33%	**F27**	15,00%
F11	16,92%	**F23**	24,21%	**F28**	24,57%	**F11**	22,67%	**F16**	12,50%
F7	13,85%	**F25**	23,16%	**F29**	18,29%	**F16**	20,00%	**F20**	10,00%
F22	13,85%	**F18**	20,00%	**F21**	14,29%	**F23**	20,00%	**F21**	10,00%
F20	6,15%	**F15**	18,95%	**F20**	13,71%	**F5**	19,33%	**F25**	10,00%
F21	6,15%	**F24**	17,89%	**F18**	11,43%	**F4**	18,67%	**F18**	7,50%
F24	6,15%	**F12**	15,79%	**F27**	10,86%	**F25**	18,00%	**F13**	5,00%
F18	4,62%	**F16**	15,79%	**F24**	10,29%	**F12**	14,67%	**F22**	5,00%
F13	3,08%	**F22**	15,79%	**F13**	9,14%	**F18**	10,67%	**F24**	2,50%
F12	0,00%	**F13**	11,58%	**F12**	5,71%	**F13**	9,33%	**F12**	0,00%

Table 5a.26. Sorting of influence factors according to the most higher percentage proportion score per implementation path (S1-S5)

Variable	Minimum	Maximum	Mean	Std. deviation
S1	0,000%	78,460%	30,133%	20,581%
S2	11,580%	68,420%	33,937%	14,577%
S3	5,710%	87,430%	35,626%	21,887%
S4	9,330%	66,670%	34,207%	16,283%
S5	0,000%	55,000%	22,672%	14,984%

Table 5a.27. Summary statistics of average percentage proportions of influence factors (F1-F29) assessment per implementation path used (S1- S5).

Statistics	S1	S2	S3	S4	S5
No. of observations(Factors)	29	29	29	29	29
Minimum	0,00%	11,58%	5,71%	9,33%	0,00%
Maximum	78,46%	68,42%	87,43%	66,67%	55,00%
Range	78,46%	56,84%	81,72%	57,34%	55,00%
1st Quartile	13,85%	23,16%	18,29%	20,00%	10,00%
Median	27,69%	33,68%	30,29%	32,67%	20,00%
3rd Quartile	43,08%	40,00%	47,43%	45,33%	32,50%
Mean	30,13%	33,94%	35,63%	34,21%	22,67%
Variance (n)	4,09%	2,05%	4,63%	2,56%	2,17%
Variance (n-1)	4,24%	2,12%	4,79%	2,65%	2,25%
Standard deviation (n)	20,22%	14,32%	21,51%	16,00%	14,72%
Standard deviation (n-1)	20,58%	14,58%	21,89%	16,28%	14,98%
Variation coefficient	67,11%	42,20%	60,37%	46,77%	64,94%
Skewness (Pearson)	61,81%	54,50%	75,39%	47,79%	51,72%
Skewness (Fisher)	65,23%	57,52%	79,56%	50,44%	54,59%

Skewness (Bowley)	5,30%	-24,94%	17,64%	-0,04%	11,11%
Kurtosis (Pearson)	-4,57%	-24,39%	-8,59%	-70,65%	-60,26%
Kurtosis (Fisher)	18,47%	-5,25%	13,65%	-60,61%	-48,18%
Standard error of the mean	3,82%	2,71%	4,06%	3,02%	2,78%
Lower bound on mean (95%)	22,30%	28,39%	27,30%	28,01%	16,97%
Upper bound on mean (95%)	37,96%	39,48%	43,95%	40,40%	28,37%
Standard error(Skewness (Fisher))	43,35%	43,35%	43,35%	43,35%	43,35%
Standard error(Kurtosis (Fisher))	84,52%	84,52%	84,52%	84,52%	84,52%
Mean absolute deviation	15,96%	11,37%	17,01%	13,35%	12,43%
Median absolute deviation	13,84%	9,47%	16,00%	12,67%	10,00%

Table 5a.28. Descriptive statistics of F1-F29 influence factors per S1-S5 implementation path categories.

TOTALS >5	Y(> 5) Q1	Y(> 5) Q2	Y(> 5) Q3	Y(> 5) Q4	Y(> 5) Q5	Y(> 5) Q6	Y(> 5) Q7	Y(> 5) Q8
Strongly Disagree	0,00%	0,00%	5,43%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	0,00%	0,00%	9,78%	7,61%	0,00%	6,52%	0,00%	7,61%
Agree	44,57%	53,26%	48,91%	65,22%	54,35%	72,83%	46,74%	70,65%
Strongly Agree	55,43%	46,74%	35,87%	27,17%	45,65%	20,65%	53,26%	21,74%
TOTALS >5	**Y(> 5) Q9**	**Y(> 5) Q10**	**Y(> 5) Q11**	**Y(> 5) Q12**	**Y(> 5) Q13**	**Y(> 5) Q14**	**Y(> 5) Q15**	**Y(> 5) Q16**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	11,96%	3,26%	13,04%	5,43%	18,48%	0,00%	7,61%	22,83%
Agree	57,61%	56,52%	58,70%	79,35%	64,13%	75,00%	75,00%	68,48%
Strongly Agree	30,43%	40,22%	28,26%	15,22%	17,39%	25,00%	17,39%	8,70%
TOTALS >5	**Y(> 5) Q17**	**Y(> 5) Q18**	**Y(> 5) Q19**	**Y(> 5) Q20**	**Y(> 5) Q21**	**Y(> 5) Q22**	**Y(> 5) Q23**	**Y(> 5) Q24**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	6,52%	0,00%	4,35%
Disagree	20,65%	4,35%	3,26%	18,48%	6,52%	17,39%	19,57%	7,61%
Agree	66,30%	44,57%	82,61%	65,22%	64,13%	68,48%	60,87%	69,57%
Strongly Agree	13,04%	51,09%	14,13%	16,30%	29,35%	7,61%	19,57%	18,48%
TOTALS >5	**Y(> 5) Q25**	**Y(> 5) Q26**	**Y(> 5) Q27**	**Y(> 5) Q28**	**Y(> 5) Q29**	**Y(> 5) Q30**	**Y(> 5) Q31**	**Y(> 5) Q32**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	3,26%
Disagree	8,70%	31,52%	29,35%	5,43%	8,70%	10,87%	0,00%	7,61%
Agree	57,61%	56,52%	57,61%	82,61%	59,78%	57,61%	48,91%	65,22%
Strongly Agree	33,70%	11,96%	13,04%	11,96%	31,52%	31,52%	51,09%	23,91%

Table 5a.29a. Percentages of Questions answers of participants with project management experience less than 5 years

	Y(1-5) Q1	Y(1-5) Q2	Y(1-5) Q3	Y(1-5) Q4	Y(1-5) Q5	Y(1-5) Q6	Y(1-5) Q7	Y(1-5) Q8
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	0,00%	0,00%	7,69%	7,69%	7,69%	7,69%	7,69%	15,38%
Agree	30,77%	30,77%	46,15%	38,46%	61,54%	61,54%	53,85%	61,54%
Strongly Agree	69,23%	53,85%	30,77%	38,46%	15,38%	23,08%	23,08%	15,38%
	Y(1-5) Q9	**Y(1-5) Q10**	**Y(1-5) Q11**	**Y(1-5) Q12**	**Y(1-5) Q13**	**Y(1-5) Q14**	**Y(1-5) Q15**	**Y(1-5) Q16**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	7,69%	0,00%	15,38%	23,08%	0,00%	0,00%	38,46%	15,38%

Agree	46,15%	23,08%	53,85%	46,15%	46,15%	53,85%	46,15%	76,92%
Strongly Agree	30,77%	61,54%	15,38%	15,38%	38,46%	30,77%	7,69%	0,00%
	Y(1-5) Q17	**Y(1-5) Q18**	**Y(1-5) Q19**	**Y(1-5) Q20**	**Y(1-5) Q21**	**Y(1-5) Q22**	**Y(1-5) Q23**	**Y(1-5) Q24**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	7,69%	0,00%	0,00%
Disagree	7,69%	0,00%	0,00%	15,38%	15,38%	23,08%	15,38%	0,00%
Agree	61,54%	53,85%	76,92%	30,77%	76,92%	46,15%	61,54%	76,92%
Strongly Agree	15,38%	30,77%	15,38%	38,46%	0,00%	15,38%	7,69%	15,38%
	Y(1-5) Q25	**Y(1-5) Q26**	**Y(1-5) Q27**	**Y(1-5) Q28**	**Y(1-5) Q29**	**Y(1-5) Q30**	**Y(1-5) Q31**	**Y(1-5) Q32**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	0,00%	53,85%	23,08%	0,00%	23,08%	15,38%	7,69%	7,69%
Agree	53,85%	30,77%	76,92%	76,92%	46,15%	46,15%	30,77%	38,46%
Strongly Agree	30,77%	15,38%	0,00%	15,38%	15,38%	23,08%	46,15%	46,15%

Table 5a.29b. Percentages of Questions answers of participants with project management experience more than 5 years

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**
Strongly Disagree	0,00%	0,00%	5,43%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	0,00%	0,00%	2,09%	-0,08%	-7,69%	-1,17%	-7,69%	-7,78%
Agree	13,80%	22,49%	2,76%	26,76%	-7,19%	11,29%	-7,11%	9,11%
Strongly Agree	-13,80%	-7,11%	5,10%	-11,29%	30,27%	-2,42%	30,18%	6,35%
	Q9	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Disagree	4,26%	3,26%	-2,34%	-17,64%	18,48%	0,00%	-30,85%	7,44%
Agree	11,45%	33,44%	4,85%	33,19%	17,98%	21,15%	28,85%	-8,44%
Strongly Agree	-0,33%	-21,32%	12,88%	-0,17%	-21,07%	-5,77%	9,70%	8,70%
	Q17	**Q18**	**Q19**	**Q20**	**Q21**	**Q22**	**Q23**	**Q24**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	-1,17%	0,00%	4,35%
Disagree	12,96%	4,35%	3,26%	3,09%	-8,86%	-5,69%	4,18%	7,61%
Agree	4,77%	-9,28%	5,69%	34,45%	-12,79%	22,32%	-0,67%	-7,36%
Strongly Agree	-2,34%	20,32%	-1,25%	-22,16%	29,35%	-7,78%	11,87%	3,09%
	Q25	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**	**Q31**	**Q32**
Strongly Disagree	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	3,26%
Disagree	8,70%	-22,32%	6,27%	5,43%	-14,38%	-4,52%	-7,69%	-0,08%
Agree	3,76%	25,75%	-19,31%	5,69%	13,63%	11,45%	18,14%	26,76%
Strongly Agree	2,93%	-3,43%	13,04%	-3,43%	16,14%	8,44%	4,93%	-22,24%

Table 5a.29c. Percentages differences in Questions answers between the participants with project management experience more than 5 years and less than 5 years.

Appendix 6. WEB Questionnaire

"The Links and the influence factors between

Organisational Strategy and Project Management"

NOTTINGHAM TRENT UNIVERSITY

The Links and the influence factors between Organizational Strategy and Project Management

Answers marked with a * are required.

1. DBA Cohort 8

I would like to thank you very much for your intension to participate in this online DBA research.
This survey will not take more than 10 minutes of your valuable time to answer the following questions.

George A. Vassilopoulos
DBA Candidate

Section A

Please tick the appropriate level of the following agreement indicators according to your opinion.

Q1. The implementation of a strategic project should be through portfolio, program and project managem processes. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q2. Organisational operating plans should be linked with Portfolio and Program Management processes.

- 1. Strongly disagree
- 2. Disagree
- 3. Agree

- [ ] 4. Strongly agree

Q3. The Portfolio and Program Management are the main processes for strategic projects prioritisation. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Section B

Q4. The prioritisation of strategic projects in portfolio management influences the project management context. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q5. The absence of consensus and commitment in organisational upper management is influences critica the strategic project implementation. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q6. Organisational complexity influences the strategic project implementation. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q7. Organisational culture influences the strategic project implementation.. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q8. Organisational Politics influence the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q9. Development of organisational knowledge management influences positively the strategic projects implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q10. The Human Factor influences critically the strategic projects implementation and the whole project management context as well. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q11. Project team members' work load due to other projects or activities has a negative influence on strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q12. Quality in organisational processes and functions affects positively the project management contex

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q13. Organisational bureaucracy is an extremely important factor influencing negatively the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q14. The appropriate support from other organisational functional and operational processes has a posit influence on strategic projects implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q15. The external environment influences affect the implementation of a strategic project. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q16. Organisational ethical factors affect the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q17. The absence of required organisational training affects the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q18. Organisational communication is perceived as a critical factor for successful strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q19. The establishment of an appropriate and qualitative project management process affects the implementation of a strategic project. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q20. Information Technology support plays a very important role on the implementation of a strategic project. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree

- [ ] 4. Strongly agree

Q21. Stakeholders' influence is perceived as an important factor for the implementation of strategic projects. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q22. The Project Earned Value management method helps to improve the implementation of strategic projects. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q23. The project's complexity is an important factor influences strategic project implementation. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q24. The dependences between strategic or other projects affect their implementation. *

- [ ] 1. Strongly disagree
- [ ] 2. Disagree
- [ ] 3. Agree
- [ ] 4. Strongly agree

Q25. Flexibility in project management processes help the implementation of strategic projects. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q26. If there is an extension beyond the planned time of a strategic project implementation, this affects negatively the whole project management context as well. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q27. The increment of the project cost beyond the planned budget affects the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q28. The quality of the delivered product of a strategic project affects the organisational and project management contexts. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q29. Using risk management process helps positively the strategic project implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q30. The creation of a Project Management Office (PMO) helps the successful implementation of strategi projects. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q31. The absence of project management strategy influences negatively the strategic projects implementation. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Q32. Organisational project management maturity is perceived as a very important factor for the implementation of strategic projects. *

- 1. Strongly disagree
- 2. Disagree
- 3. Agree
- 4. Strongly agree

Section C

Assessment of strategy and project management links
Strategy is linked to project management through decisions of projects and implemented through operati plans, portfolio and program management.

Please tick one of the following options in the box:

Most of the implementations of the strategic decisions in your company are performed through: *

- S1 Portfolio, program and project management
- S2 Program and project management
- S3 Portfolio and project management
- S4 Direct through Project Management

S5 By using other methodology

Assessment of the importance of factors

According to your opinion, which of the following factors are critical and most important for the implementation of strategic projects?

Please tick one of the following factors according to their importance:

Human factor *

1. Low Importance
2. Middle Importance
3. High importance

Organisational quality *

1. Low Importance
2. Middle Importance
3. High importance

Information technology support *

1. Low Importance
2. Middle Importance
3. High importance

Organisational communication *

1. Low Importance
2. Middle Importance
3. High importance

Project management strategy *

1. Low Importance
2. Middle Importance

- [ ] 3. High importance

Organisational project management maturity *

- [ ] 1. Low Importance
- [ ] 2. Middle Importance
- [ ] 3. High importance

Assessment of the most important factors affecting the project management context:

Organisational Strategy is influenced mostly by the following factor(s): (Tick one or more) *

- [ ] 1. Projects Prioritisation
- [ ] 2. Upper management consensus and commitment
- [ ] 3. Organisational culture
- [ ] 4. Organisational politics
- [ ] 5. Organisational knowledge management
- [ ] 6. Human Factor
- [ ] 7. Organisational quality
- [ ] 8. Organisational bureaucracy
- [ ] 9. Organisational complexity
- [ ] 10. Operational processes support
- [ ] 11. External environment
- [ ] 12. Ethical factors
- [ ] 13. Organisational training
- [ ] 14. Organisational communication
- [ ] 15. Project team members work load
- [ ] 16. Dependences between strategic or other projects
- [ ] 17. Project management process
- [ ] 18. Support from Information Technology

- [ ] 19. Stakeholders
- [ ] 20. Project time
- [ ] 21. Project cost
- [ ] 22. Project's delivered product quality
- [ ] 23. Project complexity
- [ ] 24. Project Earned Value management
- [ ] 25. Project management flexibility
- [ ] 26. Risk management
- [ ] 27. Project Management Office (PMO)
- [ ] 28. Project management strategy
- [ ] 29. Organisational maturity on project management
- [ ] Other (Please Specify)

Operation Plans are influenced mostly by the following factor(s): (Tick one or more) *

- [ ] 1. Projects Prioritisation
- [ ] 2. Upper management consensus and commitment
- [ ] 3. Organisational culture
- [ ] 4. Organisational politics
- [ ] 5. Organisational knowledge management
- [ ] 6. Human Factor
- [ ] 7. Organisational quality
- [ ] 8. Organisational bureaucracy
- [ ] 9. Organisational complexity
- [ ] 10. Operational processes support
- [ ] 11. External environment
- [ ] 12. Ethical factors
- [ ] 13. Organisational training
- [ ] 14. Organisational communication
- [ ] 15. Project team members work load
- [ ] 16. Dependences between strategic or other projects

- [ ] 17. Project management process
- [ ] 18. Support from Information Technology
- [ ] 19. Stakeholders
- [ ] 20. Project time
- [ ] 21. Project cost
- [ ] 22. Project's delivered product quality
- [ ] 23. Project complexity
- [ ] 24. Project Earned Value management
- [ ] 25. Project management flexibility
- [ ] 26. Risk management
- [ ] 27. Project Management Office (PMO)
- [ ] 28. Project management strategy
- [ ] 29. Organisational maturity on project management
- [ ] Other (Please Specify)

Portfolio Management is influenced mostly by the following factor(s): (Tick one or more) *

- [ ] 1. Projects Prioritisation
- [ ] 2. Upper management consensus and commitment
- [ ] 3. Organisational culture
- [ ] 4. Organisational politics
- [ ] 5. Organisational knowledge management
- [ ] 6. Human Factor
- [ ] 7. Organisational quality
- [ ] 8. Organisational bureaucracy
- [ ] 9. Organisational complexity
- [ ] 10. Operational processes support
- [ ] 11. External environment
- [ ] 12. Ethical factors
- [ ] 13. Organisational training
- [ ] 14. Organisational communication

- [ ] 15. Project team members work load
- [ ] 16. Dependences between strategic or other projects
- [ ] 17. Project management process
- [ ] 18. Support from Information Technology
- [ ] 19. Stakeholders
- [ ] 20. Project time
- [ ] 21. Project cost
- [ ] 22. Project's delivered product quality
- [ ] 23. Project complexity
- [ ] 24. Project Earned Value management
- [ ] 25. Project management flexibility
- [ ] 26. Risk management
- [ ] 27. Project Management Office (PMO)
- [ ] 28. Project management strategy
- [ ] 29. Organisational maturity on project management
- [ ] Other (Please Specify)

Program Management is influenced mostly by the following factor(s): (Tick one or more) *

- [ ] 1. Projects Prioritisation
- [ ] 2. Upper management consensus and commitment
- [ ] 3. Organisational culture
- [ ] 4. Organisational politics
- [ ] 5. Organisational knowledge management
- [ ] 6. Human Factor
- [ ] 7. Organisational quality
- [ ] 8. Organisational bureaucracy
- [ ] 9. Organisational complexity
- [ ] 10. Operational processes support
- [ ] 11. External environment
- [ ] 12. Ethical factors

- [ ] 13. Organisational training
- [ ] 14. Organisational communication
- [ ] 15. Project team members work load
- [ ] 16. Dependences between strategic or other projects
- [ ] 17. Project management process
- [ ] 18. Support from Information Technology
- [ ] 19. Stakeholders
- [ ] 20. Project time
- [ ] 21. Project cost
- [ ] 22. Project's delivered product quality
- [ ] 23. Project complexity
- [ ] 24. Project Earned Value management
- [ ] 25. Project management flexibility
- [ ] 26. Risk management
- [ ] 27. Project Management Office (PMO)
- [ ] 28. Project management strategy
- [ ] 29. Organisational maturity on project management
- [ ] Other (Please Specify)

Project Management is influenced mostly by the following factor(s): (Tick one or more) *

- [ ] 1. Projects Prioritisation
- [ ] 2. Upper management consensus and commitment
- [ ] 3. Organisational culture
- [ ] 4. Organisational politics
- [ ] 5. Organisational knowledge management
- [ ] 6. Human Factor
- [ ] 7. Organisational quality
- [ ] 8. Organisational bureaucracy
- [ ] 9. Organisational complexity
- [ ] 10. Operational processes support

- [ ] 11. External environment
- [ ] 12. Ethical factors
- [ ] 13. Organisational training
- [ ] 14. Organisational communication
- [ ] 15. Project team members work load
- [ ] 16. Dependences between strategic or other projects
- [ ] 17. Project management process
- [ ] 18. Support from Information Technology
- [ ] 19. Stakeholders
- [ ] 20. Project time
- [ ] 21. Project cost
- [ ] 22. Project's delivered product quality
- [ ] 23. Project complexity
- [ ] 24. Project Earned Value management
- [ ] 25. Project management flexibility
- [ ] 26. Risk management
- [ ] 27. Project Management Office (PMO)
- [ ] 28. Project management strategy
- [ ] 29. Organisational maturity on project management
- [ ] Other (Please Specify)

Please express your additional comments regarding the links and the influencing factors between strateg and project management.

Demographic info:

Your current position in the organisational context is in : *

- 1. Project Management
- 2. Business Management
- 3. Other

Your years of experience in Project Management are: *

- 1. 1 - 5
- 2. 5 - 15
- 3. 15 - 25
- 4. More than 25 years

Quit

Finish

Appendix.7. Confidence interval of samples answers in questions(Q1-Q32)

Summary statistics:

Variable	Observations	Minimum	Maximum	Mean	Std. deviation
Q1	105	3,000	4,000	3,571	0,497
Q2	105	3,000	4,000	3,486	0,502
Q3	105	1,000	4,000	3,171	0,790
Q4	105	2,000	4,000	3,229	0,576
Q5	105	2,000	4,000	3,419	0,515
Q6	105	2,000	4,000	3,143	0,508
Q7	105	2,000	4,000	3,505	0,521
Q8	105	2,000	4,000	3,124	0,532
Q9	105	2,000	4,000	3,200	0,626
Q10	105	2,000	4,000	3,419	0,551
Q11	105	2,000	4,000	3,143	0,627
Q12	105	2,000	4,000	3,086	0,483
Q13	105	2,000	4,000	3,057	0,618
Q14	105	3,000	4,000	3,267	0,444
Q15	105	2,000	4,000	3,048	0,526
Q16	105	2,000	4,000	2,857	0,527
Q17	105	2,000	4,000	2,952	0,578
Q18	105	2,000	4,000	3,467	0,573
Q19	105	2,000	4,000	3,114	0,400
Q20	105	2,000	4,000	3,029	0,627
Q21	105	2,000	4,000	3,181	0,551
Q22	105	1,000	4,000	2,771	0,697
Q23	105	2,000	4,000	3,000	0,620
Q24	105	1,000	4,000	3,038	0,634
Q25	105	2,000	4,000	3,267	0,593
Q26	105	2,000	4,000	2,781	0,650
Q27	105	2,000	4,000	2,829	0,612
Q28	105	2,000	4,000	3,076	0,409
Q29	105	2,000	4,000	3,210	0,615
Q30	105	2,000	4,000	3,210	0,631
Q31	105	2,000	4,000	3,514	0,521
Q32	105	1,000	4,000	3,143	0,671

Test interpretation: Q1 - Q32
H0: The difference between the means is not significantly different from 0.
Ha: The difference between the means is significantly different from 0.
As the computed p-value is lower than the significance level alpha=0,05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H0 while it is true is lower than 0,01%.

One-sample t-test / Two-tailed test (Q1):

95% confidence interval on the mean:
] 3,475; 3,668 [

Difference	3,571
t (Observed value)	73,598
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q2):

95% confidence interval on the mean:
] 3,389; 3,583 [

Difference	3,486
t (Observed value)	71,124
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q3):

95% confidence interval on the mean:
] 3,019; 3,324 [

Difference	3,171
t (Observed value)	41,134
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q4):

95% confidence interval on the mean:
] 3,117; 3,340 [

Difference	3,229
t (Observed value)	57,428
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q5):

95% confidence interval on the mean:
] 3,319; 3,519 [

Difference	3,419
t (Observed value)	68,055
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q6):

95% confidence interval on the mean:
] 3,045; 3,241 [

Difference	3,143
t (Observed value)	63,373
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q7):

95% confidence interval on the mean:
] 3,404; 3,606 [

Difference	3,505
t (Observed value)	68,909
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q8):

95% confidence interval on the mean:
] 3,021; 3,227 [

Difference	3,124
t (Observed value)	60,213
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q9):

95% confidence interval on the mean:
] 3,079; 3,321 [

Difference	3,200
t (Observed value)	52,352
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q10):

95% confidence interval on the mean:
] 3,312; 3,526 [

Difference	3,419
t (Observed value)	63,597
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q11):

95% confidence interval on the mean:
] 3,022; 3,264 [

Difference	3,143
t (Observed value)	51,381
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q12):

95% confidence interval on the mean:
] 2,992; 3,179 [

Difference	3,086
t (Observed value)	65,509
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q13):

95% confidence interval on the mean:
] 2,938; 3,177 [

Difference	3,057
t (Observed value)	50,730
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q14):

95% confidence interval on the mean:
] 3,181; 3,353 [

Difference	3,267
t (Observed value)	75,333
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q15):

95% confidence interval on the mean:
] 2,946; 3,149 [

Difference	3,048
t (Observed value)	59,383
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q16):

95% confidence interval on the mean:
] 2,755; 2,959 [

Difference	2,857
t (Observed value)	55,580
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q17):

95% confidence interval on the mean:
] 2,840; 3,064 [

Difference	2,952
t (Observed value)	52,328
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q18):

95% confidence interval on the mean:
] 3,356; 3,578 [

Difference	3,467
t (Observed value)	62,006
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q19):

95% confidence interval on the mean:
] 3,037; 3,192 [

Difference	3,114
t (Observed value)	79,807
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q20):

95% confidence interval on the mean:
] 2,907; 3,150 [

Difference	3,029
t (Observed value)	49,478
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q21):

95% confidence interval on the mean:
] 3,074; 3,288 [

Difference	3,181
t (Observed value)	59,168
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001

alpha	0,05

One-sample t-test / Two-tailed test (Q22):

95% confidence interval on the mean:
] 2,637; 2,906 [

Difference	2,771
t (Observed value)	40,748
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q23):

95% confidence interval on the mean:
] 2,880; 3,120 [

Difference	3,000
t (Observed value)	49,568
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q24):

95% confidence interval on the mean:
] 2,915; 3,161 [

Difference	3,038
t (Observed value)	49,077
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q25):

95% confidence interval on the mean:
] 3,152; 3,381 [

Difference	3,267
t (Observed value)	56,477
t (Critical value)	-1,983

DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q26):

95% confidence interval on the mean:
] 2,655; 2,907 [

Difference	2,781
t (Observed value)	43,830
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q27):

95% confidence interval on the mean:
] 2,710; 2,947 [

Difference	2,829
t (Observed value)	47,383
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q28):

95% confidence interval on the mean:
] 2,997; 3,155 [

Difference	3,076
t (Observed value)	77,085
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q29):

95% confidence interval on the mean:
] 3,090; 3,329 [

Difference	3,210

t (Observed value)	53,439
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q30):

95% confidence interval on the mean:
] 3,087; 3,332 [

Difference	3,210
t (Observed value)	52,132
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q31):

95% confidence interval on the mean:
] 3,413; 3,615 [

Difference	3,514
t (Observed value)	69,120
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

One-sample t-test / Two-tailed test (Q32):

95% confidence interval on the mean:
] 3,013; 3,273 [

Difference	3,143
t (Observed value)	47,979
t (Critical value)	-1,983
DF	104
p-value (Two-tailed)	< 0,0001
alpha	0,05

Appendix 8. Descriptive statistics /Explanation of statistical process (XLStat 2008 and SPSS 16)

N number of observations

Number of observations is the N number of values in the selected sample. In the subsequent statistical calculations, values identified as missing are ignored. The n is defined to be the number of non-missing values, and {x1, x2, … xn} to be the sub-sample of non-missing values whose respective weights are {w1, w2, … wn}.

Sum of weights

Sum of weights is the summary of the weights, Sw. When all weights are 1, or when weights are "standardized", Sw=n.

Minimum: The minimum of the series analyzed.

Maximum: The maximum of the series analyzed.

Frequency of minimum: The frequency of the minimum of the series.

Frequency of maximum: The frequency of the maximum of the series.

Range: The range is the difference between the minimum and maximum of the series.

1st quartile: The first quartile Q1 is calculated as the value for which 25% of the values are less.

Median: The median Q2 is the value for which 50% of the values are less.

3rd quartile: The third quartile Q3 is calculated as the value for which 75% of the values are less.

Sum: The weighted sum of the values is calculated using the following formula:

$$S = \sum_{i=1}^{n} w_i x_i$$

Mean: The mean of the sample is calculated by $\mu = S / Sw$.

Variance (n): The variance of the sample calculated by:

$$s(n)^2 = \frac{\sum_{i=1}^{n} w_i \left(x_i - \mu\right)^2}{Sw}$$

Variance (n-1): The estimated variance of the sample calculated by:

$$s(n-1)^2 = \frac{\sum_{i=1}^{n} w_i (x_i - \mu)^2}{Sw - Sw/n}$$

Standard deviation (n): The standard deviation of the sample calculated by s(n).

Standard deviation (n-1): The standard deviation of the sample calculated by s(n-1).

Variation coefficient: this coefficient is only calculated if the mean of the sample is non-zero. It is calculated by CV = s(n) / μ. This coefficient measures the dispersion of a sample relative to its mean. It is used to compare the dispersion of samples whose scales or means differ greatly.

Skewness (Pearson): The Pearson skewness coefficient is calculated by:

$$\gamma_1 = \frac{\mu_3}{s(n)^3} \quad \text{avec} \quad \mu_3 = \frac{\sum_{i=1}^{n} w_i (x_i - \mu)^3}{Sw}$$

This coefficient gives an indication of the shape of the distribution of the sample. If the value is negative (or positive respectively), the distribution is concentrated on the left (or right respectively) of the mean.

Skewness (Fisher): The Fisher skewness coefficient is calculated by:

$$G_1 = \frac{\sqrt{Sw(Sw - Sw/n)}\gamma_1}{Sw - 2Sw/n}$$

Unlike the previous, this coefficient is not biased on the assumption that the data is normally distributed. This coefficient gives an indication of the shape of the distribution of the sample. If the value is negative (or positive respectively), the distribution is concentrated on the left (or right respectively) of the mean.

Skewness (Bowley) : The Bowley skewness coefficient is calculated by:

$$A(B) = \frac{Q_1 - 2Q_2 + Q_3}{Q_3 - Q_1}$$

Kurtosis (Pearson): The Pearson kurtosis coefficient is calculated by:

$$\gamma_2 = \frac{\mu_4}{s^4(n)} \text{-3} \quad \text{avec} \quad \mu_4 = \frac{\sum_{i=1}^{n} w_i \left(x_i - \mu\right)^4}{Sw}$$

This coefficient, sometimes called excess kurtosis, gives an indication of the shape of the distribution of the sample. If the value is negative (or positive respectively), the peak of the distribution of the sample is more flattened out (or respectively less) than that of a normal distribution.

Kurtosis (Fisher): The Fisher kurtosis coefficient is calculated by:

$$G_2 = \frac{Sw - Sw/n}{\left(Sw - 2Sw/n\right)\left(Sw - 3Sw/n\right)}\left(\left(Sw + Sw/n\right)\gamma_2 + 6\right)$$
$$= \frac{Sw - Sw/n}{\left(Sw - 2Sw/n\right)\left(Sw - 3Sw/n\right)}\left(\frac{\mu_4}{s^4(n)} - 3\left(Sw - sw/n\right)\right)$$

Unlike the previous, this coefficient is not biased on the assumption that the data is normally distributed. This coefficient, sometimes called excess kurtosis, gives an indication of the shape of the distribution of the sample. If the value is negative (or positive respectively), the peak of the distribution of the sample is more flattened out (or respectively less) than that of a normal distribution.

Standard error of the mean: this statistic is calculated by:

$$s_\mu = \sqrt{\frac{s(n-1)^2}{Sw}}$$

Lower bound on mean (x%): this statistic corresponds to the lower bound of the confidence interval at x% of the mean. This statistic is calculated by:

$$L_\mu = \mu - s_\mu \left| t_{(100-x/2)} \right|$$

Upper bound on mean (x%): this statistic corresponds to the upper bound of the confidence interval at x% of the mean. This statistic is calculated by:

$$U_\mu = \mu + s_\mu \left| t_{(100-x/2)} \right|$$

Standard error (Skewness (Fisher)): The standard error of the Fisher's skewness coefficient is calculated by:

$$se(G_1) = \sqrt{\frac{6Sw(Sw-1)}{(Sw-2)(Sw+1)(Sw+3)}}$$

Standard error (Kurtosis (Fisher)): The standard error of the Fisher's kurtosis coefficient is calculated by:

$$se(G_2) = \sqrt{\frac{4(Sw^2-1)(se(G_1))^2}{(Sw-3)(Sw+5)}}$$

Mean absolute deviation: as for standard deviation or variance, this coefficient measures the dispersion (or variability) of the sample. It is calculated by:

$$e(\mu) = \frac{\sum_{i=1}^{n} w_i \left| x_i - \mu \right|}{Sw}$$

Median absolute deviation: this statistic is the median of absolute deviations to the median.

Geometric mean: this statistic is only calculated if all the values are strictly positive. It is calculated by:

$$\mu_G = \exp\left(\frac{1}{Sw} \sum_{i=1}^{n} w_i Ln(x_i) \right)$$

And if all the weights are equal to 1, we have:

$$\mu_G = \sqrt[n]{\prod_{i=1}^{n} x_i}$$

Geometric standard deviation: this statistic is calculated by:

$$\sigma_G = \exp\left(\frac{1}{Sw} \sum_{i=1}^{n} w_i \left(Ln(x_i) - Ln(\mu_G) \right)^2 \right)$$

Harmonic mean: this statistic is calculated by:

$$\mu_H = \frac{Sw}{\sum_{i=1}^{n} \frac{w_i}{x_i}}$$

In the following table is illustrated the analysis and summary descriptive statistics of 105 samples of survey answers of all 32 questions.

Statistic	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
No. of observations	105	105	105	105	105	105	105	105
No. of missing values	0	0	0	0	0	0	0	0
Sum of weights	105	105	105	105	105	105	105	105
Minimum	3,000	3,000	1,000	2,000	2,000	2,000	2,000	2,000
Maximum	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000

Freq. of minimum	45	54	5	8	1	7	1	9
Freq. of maximum	60	51	38	32	45	22	54	22
Range	1,000	1,000	3,000	2,000	2,000	2,000	2,000	2,000
1st Quartile	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Median	4,000	3,000	3,000	3,000	3,000	3,000	4,000	3,000
3rd Quartile	4,000	4,000	4,000	4,000	4,000	3,000	4,000	3,000
Sum	375,000	366,000	333,000	339,000	359,000	330,000	368,000	328,000
Mean	3,571	3,486	3,171	3,229	3,419	3,143	3,505	3,124
Variance (n)	0,245	0,250	0,618	0,329	0,262	0,256	0,269	0,280
Variance (n-1)	0,247	0,252	0,624	0,332	0,265	0,258	0,272	0,283
Standard deviation (n)	0,495	0,500	0,786	0,573	0,512	0,506	0,519	0,529
Standard deviation (n-1)	0,497	0,502	0,790	0,576	0,515	0,508	0,521	0,532
Variation coefficient	0,139	0,143	0,248	0,178	0,150	0,161	0,148	0,169
Skewness (Pearson)	-0,289	0,057	-0,900	-0,047	0,115	0,234	-0,224	0,121
Skewness (Fisher)	-0,293	0,058	-0,913	-0,047	0,117	0,238	-0,227	0,123
Skewness (Bowley)	-1,000	1,000	1,000	1,000	1,000		-1,000	
Kurtosis (Pearson)	-1,917	-1,997	0,686	-0,379	-1,480	0,472	-1,471	0,323
Kurtosis (Fisher)	-1,952	-2,036	0,780	-0,338	-1,493	0,554	-1,484	0,399
Standard error of the mean	0,049	0,049	0,077	0,056	0,050	0,050	0,051	0,052
Lower bound on mean (95%)	3,475	3,389	3,019	3,117	3,319	3,045	3,404	3,021
Upper bound on mean (95%)	3,668	3,583	3,324	3,340	3,519	3,241	3,606	3,227
Standard error(Skewness (Fisher))	0,236	0,236	0,236	0,236	0,236	0,236	0,236	0,236
Standard error(Kurtosis (Fisher))	0,467	0,467	0,467	0,467	0,467	0,467	0,467	0,467
Mean absolute deviation	0,490	0,500	0,600	0,470	0,498	0,359	0,509	0,367
Median absolute deviation	0,000	0,000	1,000	0,000	0,000	0,000	0,000	0,000
Geometric mean	3,536	3,450	3,040	3,175	3,381	3,101	3,465	3,078
Geometric standard deviation	1,154	1,155	1,380	1,205	1,164	1,180	1,166	1,193
Harmonic mean	3,500	3,415	2,851	3,119	3,342	3,058	3,424	3,029

Statistic	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
No. of observations	105	105	105	105	105	105	105	105
No. of missing values	0	0	0	0	0	0	0	0
Sum of weights	105	105	105	105	105	105	105	105
Minimum	2,000	2,000	2,000	2,000	2,000	3,000	2,000	2,000
Maximum	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Freq. of minimum	12	3	14	8	17	77	12	23
Freq. of maximum	33	47	29	17	23	28	17	8
Range	2,000	2,000	2,000	2,000	2,000	1,000	2,000	2,000
1st Quartile	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Median	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
3rd Quartile	4,000	4,000	4,000	3,000	3,000	4,000	3,000	3,000
Sum	336,000	359,000	330,000	324,000	321,000	343,000	320,000	300,000
Mean	3,200	3,419	3,143	3,086	3,057	3,267	3,048	2,857
Variance (n)	0,389	0,301	0,389	0,231	0,378	0,196	0,274	0,275
Variance (n-1)	0,392	0,303	0,393	0,233	0,381	0,197	0,277	0,277
Standard deviation (n)	0,623	0,548	0,624	0,480	0,615	0,442	0,523	0,524
Standard deviation (n-1)	0,626	0,551	0,627	0,483	0,618	0,444	0,526	0,527
Variation coefficient	0,195	0,160	0,198	0,156	0,201	0,135	0,172	0,183
Skewness (Pearson)	-0,170	-0,197	-0,111	0,232	-0,034	1,055	0,058	-0,154
Skewness (Fisher)	-0,172	-0,200	-0,112	0,236	-0,034	1,071	0,059	-0,156
Skewness (Bowley)	1,000	1,000	1,000			1,000		
Kurtosis (Pearson)	-0,572	-0,975	-0,511	1,114	-0,369	-0,886	0,610	0,290

Kurtosis (Fisher)	-0,541	-0,963	-0,477	1,228	-0,328	-0,871	0,699	0,364
Standard error of the mean	0,061	0,054	0,061	0,047	0,060	0,043	0,051	0,051
Lower bound on mean (95%)	3,079	3,312	3,022	2,992	2,938	3,181	2,946	2,755
Upper bound on mean (95%)	3,321	3,526	3,264	3,179	3,177	3,353	3,149	2,959
Standard error(Skewness (Fisher))	0,236	0,236	0,236	0,236	0,236	0,236	0,236	0,236
Standard error(Kurtosis (Fisher))	0,467	0,467	0,467	0,467	0,467	0,467	0,467	0,467
Mean absolute deviation	0,503	0,520	0,473	0,296	0,413	0,391	0,308	0,376
Median absolute deviation	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Geometric mean	3,135	3,373	3,077	3,047	2,992	3,239	3,001	2,806
Geometric standard deviation	1,231	1,183	1,235	1,175	1,237	1,136	1,198	1,216
Harmonic mean	3,066	3,325	3,007	3,007	2,923	3,214	2,951	2,751

Statistic	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
No. of observations	105	105	105	105	105	105	105	105
No. of missing values	0	0	0	0	0	0	0	0
Sum of weights	105	105	105	105	105	105	105	105
Minimum	2,000	2,000	2,000	2,000	2,000	1,000	2,000	1,000
Maximum	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Freq. of minimum	20	4	3	19	8	7	20	4
Freq. of maximum	15	53	15	22	27	9	20	19
Range	2,000	2,000	2,000	2,000	2,000	3,000	2,000	3,000
1st Quartile	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Median	3,000	4,000	3,000	3,000	3,000	3,000	3,000	3,000
3rd Quartile	3,000	4,000	3,000	3,000	4,000	3,000	3,000	3,000
Sum	310,000	364,000	327,000	318,000	334,000	291,000	315,000	319,000
Mean	2,952	3,467	3,114	3,029	3,181	2,771	3,000	3,038
Variance (n)	0,331	0,325	0,158	0,390	0,301	0,481	0,381	0,399
Variance (n-1)	0,334	0,328	0,160	0,393	0,303	0,486	0,385	0,402
Standard deviation (n)	0,575	0,570	0,398	0,624	0,548	0,694	0,617	0,631
Standard deviation (n-1)	0,578	0,573	0,400	0,627	0,551	0,697	0,620	0,634
Variation coefficient	0,195	0,164	0,128	0,206	0,172	0,250	0,206	0,208
Skewness (Pearson)	-0,001	-0,486	0,928	-0,020	0,072	-0,859	0,000	-0,938
Skewness (Fisher)	-0,001	-0,493	0,942	-0,020	0,073	-0,872	0,000	-0,952
Skewness (Bowley)		-1,000			1,000			
Kurtosis (Pearson)	0,000	-0,740	2,267	-0,437	-0,071	0,965	-0,375	2,601
Kurtosis (Fisher)	0,059	-0,717	2,439	-0,399	-0,015	1,072	-0,334	2,788
Standard error of the mean	0,056	0,056	0,039	0,061	0,054	0,068	0,061	0,062
Lower bound on mean (95%)	2,840	3,356	3,037	2,907	3,074	2,637	2,880	2,915
Upper bound on mean (95%)	3,064	3,578	3,192	3,150	3,288	2,906	3,120	3,161
Standard error(Skewness (Fisher))	0,236	0,236	0,236	0,236	0,236	0,236	0,236	0,236
Standard error(Kurtosis (Fisher))	0,467	0,467	0,467	0,467	0,467	0,467	0,467	0,467
Mean absolute deviation	0,363	0,538	0,253	0,407	0,421	0,515	0,381	0,348
Median absolute deviation	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Geometric mean	2,894	3,416	3,090	2,961	3,132	2,656	2,933	2,950
Geometric standard deviation	1,228	1,194	1,134	1,243	1,197	1,379	1,242	1,309
Harmonic mean	2,831	3,360	3,066	2,890	3,081	2,495	2,864	2,819

Statistic	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32
No. of observations	105	105	105	105	105	105	105	105
No. of missing values	0	0	0	0	0	0	0	0
Sum of weights	105	105	105	105	105	105	105	105

Minimum	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,000
Maximum	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Freq. of minimum	8	36	30	5	11	12	1	3
Freq. of maximum	36	13	12	13	33	34	55	29
Range	2,000	2,000	2,000	2,000	2,000	2,000	2,000	3,000
1st Quartile	3,000	2,000	2,000	3,000	3,000	3,000	3,000	3,000
Median	3,000	3,000	3,000	3,000	3,000	3,000	4,000	3,000
3rd Quartile	4,000	3,000	3,000	3,000	4,000	4,000	4,000	4,000
Sum	343,000	292,000	297,000	323,000	337,000	337,000	369,000	330,000
Mean	3,267	2,781	2,829	3,076	3,210	3,210	3,514	3,143
Variance (n)	0,348	0,419	0,371	0,166	0,375	0,394	0,269	0,446
Variance (n-1)	0,351	0,423	0,374	0,167	0,379	0,398	0,271	0,451
Standard deviation (n)	0,590	0,647	0,609	0,407	0,612	0,628	0,519	0,668
Standard deviation (n-1)	0,593	0,650	0,612	0,409	0,615	0,631	0,521	0,671
Variation coefficient	0,181	0,233	0,215	0,132	0,191	0,196	0,148	0,213
Skewness (Pearson)	-0,149	0,246	0,107	0,562	-0,154	-0,192	-0,262	-0,747
Skewness (Fisher)	-0,151	0,249	0,109	0,570	-0,157	-0,195	-0,266	-0,758
Skewness (Bowley)	1,000	-1,000	-1,000		1,000	1,000	-1,000	1,000
Kurtosis (Pearson)	-0,537	-0,706	-0,449	2,617	-0,527	-0,605	-1,452	1,428
Kurtosis (Fisher)	-0,504	-0,681	-0,412	2,805	-0,494	-0,576	-1,464	1,557
Standard error of the mean	0,058	0,063	0,060	0,040	0,060	0,062	0,051	0,066
Lower bound on mean (95%)	3,152	2,655	2,710	2,997	3,090	3,087	3,413	3,013
Upper bound on mean (95%)	3,381	2,907	2,947	3,155	3,329	3,332	3,615	3,273
Standard error(Skewness (Fisher))	0,236	0,236	0,236	0,236	0,236	0,236	0,236	0,236
Standard error(Kurtosis (Fisher))	0,467	0,467	0,467	0,467	0,467	0,467	0,467	0,467
Mean absolute deviation	0,503	0,536	0,473	0,229	0,497	0,512	0,509	0,473
Median absolute deviation	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Geometric mean	3,210	2,705	2,761	3,049	3,147	3,144	3,474	3,052
Geometric standard deviation	1,211	1,268	1,251	1,143	1,225	1,233	1,166	1,303
Harmonic mean	3,150	2,630	2,692	3,022	3,081	3,073	3,433	2,923

Table 8.1. Descriptive statistics of 105 data samples (Q1- Q32)

Appendix 9. Frequencies tables of distribution of survey questions (Q1 Q32)

Q1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	45	42.9	42.9	42.9
	4	60	57.1	57.1	100.0
	Total	105	100.0	100.0	

Q2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	54	51.4	51.4	51.4
	4	51	48.6	48.6	100.0
	Total	105	100.0	100.0	

Q3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	4.8	4.8	4.8
	2	10	9.5	9.5	14.3
	3	52	49.5	49.5	63.8
	4	38	36.2	36.2	100.0
	Total	105	100.0	100.0	

Q4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	7.6	7.6	7.6
	3	65	61.9	61.9	69.5
	4	32	30.5	30.5	100.0
	Total	105	100.0	100.0	

Q5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	59	56.2	56.2	57.1
	4	45	42.9	42.9	100.0
	Total	105	100.0	100.0	

Q6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	7	6.7	6.7	6.7
	3	76	72.4	72.4	79.0
	4	22	21.0	21.0	100.0
	Total	105	100.0	100.0	

Q7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	50	47.6	47.6	48.6
	4	54	51.4	51.4	100.0
	Total	105	100.0	100.0	

Q8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	9	8.6	8.6	8.6
	3	74	70.5	70.5	79.0
	4	22	21.0	21.0	100.0
	Total	105	100.0	100.0	

Q9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	12	11.4	11.4	11.4
	3	60	57.1	57.1	68.6
	4	33	31.4	31.4	100.0
	Total	105	100.0	100.0	

Q10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	2.9	2.9	2.9
	3	55	52.4	52.4	55.2

	4	47	44.8	44.8	100.0
	Total	105	100.0	100.0	

Q11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	14	13.3	13.3	13.3
	3	62	59.0	59.0	72.4
	4	29	27.6	27.6	100.0
	Total	105	100.0	100.0	

Q12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	7.6	7.6	7.6
	3	80	76.2	76.2	83.8
	4	17	16.2	16.2	100.0
	Total	105	100.0	100.0	

Q13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	17	16.2	16.2	16.2
	3	65	61.9	61.9	78.1
	4	23	21.9	21.9	100.0
	Total	105	100.0	100.0	

Q14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	77	73.3	73.3	73.3
	4	28	26.7	26.7	100.0
	Total	105	100.0	100.0	

Q15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	12	11.4	11.4	11.4
	3	76	72.4	72.4	83.8

Q14

		Frequency	Percent	Valid Percent	Cumulative Percent
	3	77	73.3	73.3	73.3
	4	28	26.7	26.7	100.0
	4	17	16.2	16.2	100.0
	Total	105	100.0	100.0	

Q16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	23	21.9	21.9	21.9
	3	74	70.5	70.5	92.4
	4	8	7.6	7.6	100.0
	Total	105	100.0	100.0	

Q17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	20	19.0	19.0	19.0
	3	70	66.7	66.7	85.7
	4	15	14.3	14.3	100.0
	Total	105	100.0	100.0	

Q18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	3.8	3.8	3.8
	3	48	45.7	45.7	49.5
	4	53	50.5	50.5	100.0
	Total	105	100.0	100.0	

Q19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	2.9	2.9	2.9

	3	87	82.9	82.9	85.7
	4	15	14.3	14.3	100.0
	Total	105	100.0	100.0	

Q20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	19	18.1	18.1	18.1
	3	64	61.0	61.0	79.0
	4	22	21.0	21.0	100.0
	Total	105	100.0	100.0	

Q21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	7.6	7.6	7.6
	3	70	66.7	66.7	74.3
	4	27	25.7	25.7	100.0
	Total	105	100.0	100.0	

Q22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	6.7	6.7	6.7
	2	19	18.1	18.1	24.8
	3	70	66.7	66.7	91.4
	4	9	8.6	8.6	100.0
	Total	105	100.0	100.0	

Q23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	20	19.0	19.0	19.0
	3	65	61.9	61.9	81.0
	4	20	19.0	19.0	100.0
	Total	105	100.0	100.0	

Q24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	3.8	3.8	3.8
	2	7	6.7	6.7	10.5
	3	75	71.4	71.4	81.9
	4	19	18.1	18.1	100.0
	Total	105	100.0	100.0	

Q25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	7.6	7.6	7.6
	3	61	58.1	58.1	65.7
	4	36	34.3	34.3	100.0
	Total	105	100.0	100.0	

Q26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	36	34.3	34.3	34.3
	3	56	53.3	53.3	87.6
	4	13	12.4	12.4	100.0
	Total	105	100.0	100.0	

Q27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	30	28.6	28.6	28.6
	3	63	60.0	60.0	88.6
	4	12	11.4	11.4	100.0
	Total	105	100.0	100.0	

Q28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	5	4.8	4.8	4.8
	3	87	82.9	82.9	87.6

	4	13	12.4	12.4	100.0
	Total	105	100.0	100.0	

Q29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	11	10.5	10.5	10.5
	3	61	58.1	58.1	68.6
	4	33	31.4	31.4	100.0
	Total	105	100.0	100.0	

Q30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	12	11.4	11.4	11.4
	3	59	56.2	56.2	67.6
	4	34	32.4	32.4	100.0
	Total	105	100.0	100.0	

Q31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	49	46.7	46.7	47.6
	4	55	52.4	52.4	100.0
	Total	105	100.0	100.0	

Q32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	2.9	2.9	2.9
	2	8	7.6	7.6	10.5
	3	65	61.9	61.9	72.4
	4	29	27.6	27.6	100.0
	Total	105	100.0	100.0	

Table 9.1 Frequencies distribution of survey questions (Q1 Q32)

Histogram of frequencies

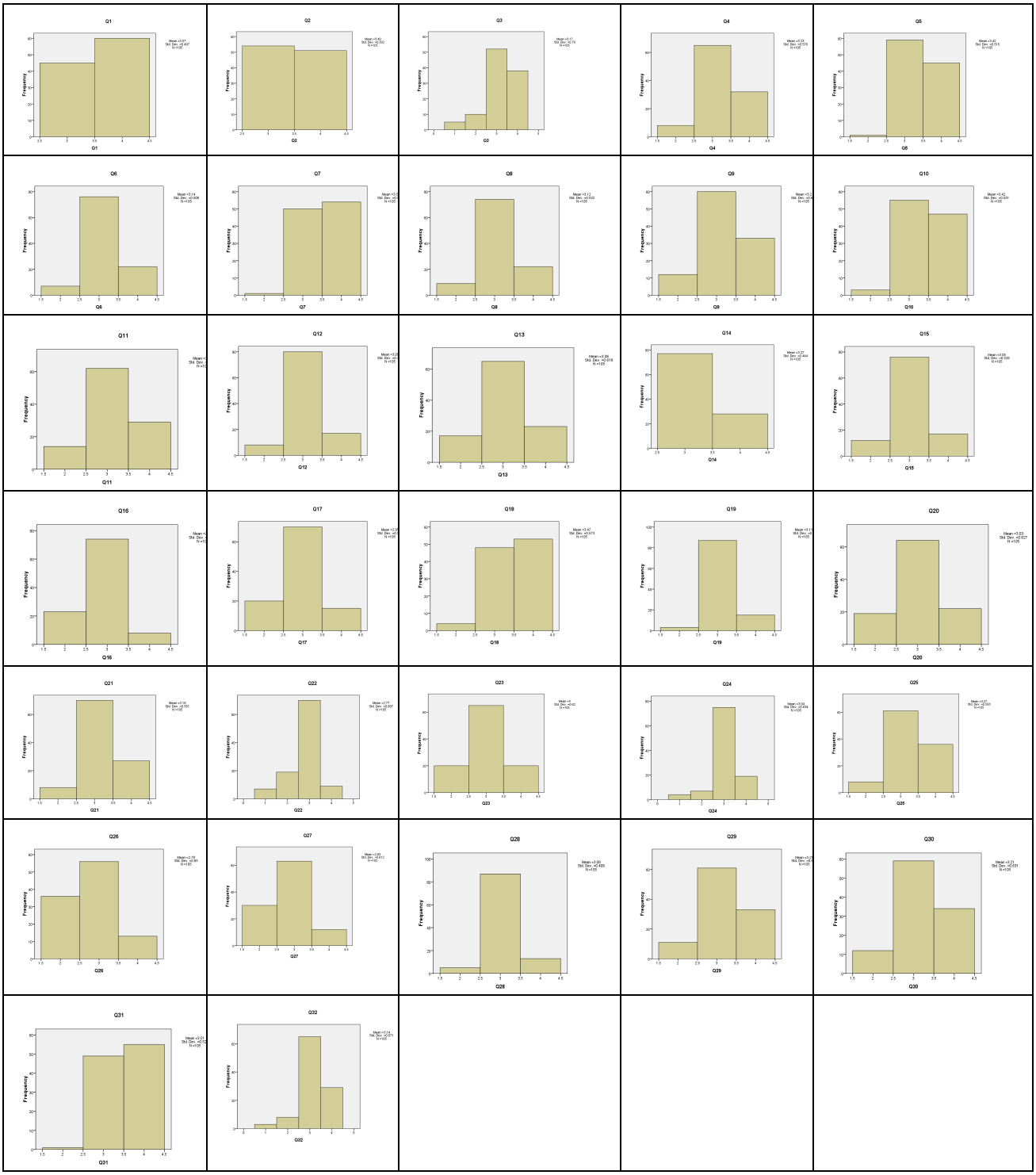

Figure 9.1 Frequencies distribution of survey questions (Q1 Q32)

Appendix 10. Frequencies distribution of survey questions of important factors

Frequency Tables

HF

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	2	11	10.5	10.5	10.5
	3	94	89.5	89.5	100.0
	Total	105	100.0	100.0	

OQ

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	5.7	5.7	5.7
	2	49	46.7	46.7	52.4
	3	50	47.6	47.6	100.0
	Total	105	100.0	100.0	

ITS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	12.4	12.4	12.4
	2	69	65.7	65.7	78.1
	3	23	21.9	21.9	100.0
	Total	105	100.0	100.0	

Ocm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	8	7.6	7.6	7.6
	3	97	92.4	92.4	100.0
	Total	105	100.0	100.0	

PMS

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	2	13	12.4	12.4	12.4
	3	92	87.6	87.6	100.0
	Total	105	100.0	100.0	

OPMM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	11.4	11.4	11.4
	2	40	38.1	38.1	49.5
	3	53	50.5	50.5	100.0
	Total	105	100.0	100.0	

Table 10.1 Frequencies distribution of survey questions of important factors

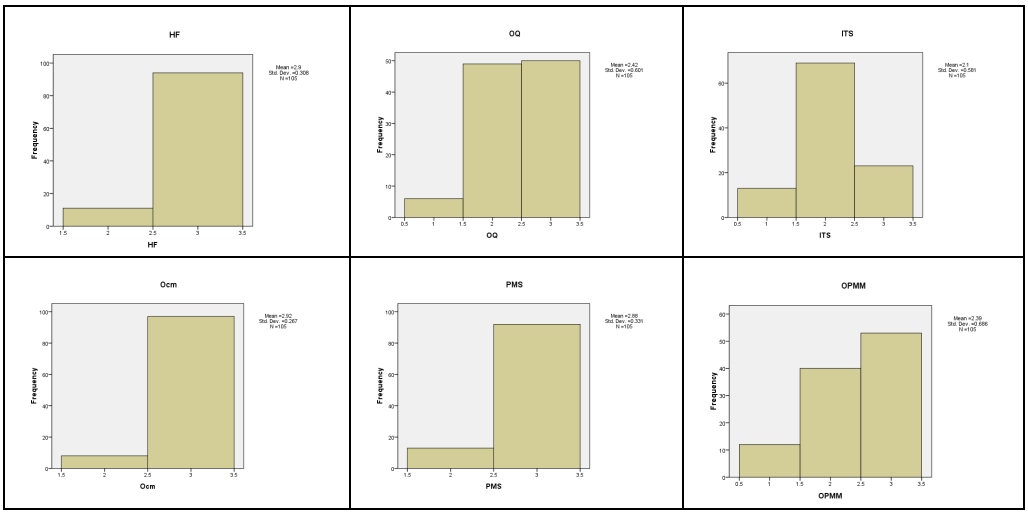

Table 10.1 Histogram of Frequencies distribution of survey questions (important-factors)

Appendix 11. Descriptive Statistics of survey questions (Q1 - Q32) and important factors

Descriptive Statistics Descriptive Statistics of survey questions (Q1 - Q32)									
	N Statistic	Range	Minimum	Maximum	Mean	Std. eviation	Variance	Skewness	Kurtosis

						Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Q1	105	1	3	4	3.57	.049	.497	.247	-.293	.236	-1.952	.467
Q2	105	1	3	4	3.49	.049	.502	.252	.058	.236	-2.036	.467
Q3	105	3	1	4	3.17	.077	.790	.624	-.913	.236	.780	.467
Q4	105	2	2	4	3.23	.056	.576	.332	-.047	.236	-.338	.467
Q5	105	2	2	4	3.42	.050	.515	.265	.117	.236	-1.493	.467
Q6	105	2	2	4	3.14	.050	.508	.258	.238	.236	.554	.467
Q7	105	2	2	4	3.50	.051	.521	.272	-.227	.236	-1.484	.467
Q8	105	2	2	4	3.12	.052	.532	.283	.123	.236	.399	.467
Q9	105	2	2	4	3.20	.061	.626	.392	-.172	.236	-.541	.467
Q10	105	2	2	4	3.42	.054	.551	.303	-.200	.236	-.963	.467
Q11	105	2	2	4	3.14	.061	.627	.393	-.112	.236	-.477	.467
Q12	105	2	2	4	3.09	.047	.483	.233	.236	.236	1.228	.467
Q13	105	2	2	4	3.06	.060	.618	.381	-.034	.236	-.328	.467
Q14	105	1	3	4	3.27	.043	.444	.197	1.071	.236	-.871	.467
Q15	105	2	2	4	3.05	.051	.526	.277	.059	.236	.699	.467
Q16	105	2	2	4	2.86	.051	.527	.277	-.156	.236	.364	.467
Q17	105	2	2	4	2.95	.056	.578	.334	-.001	.236	.059	.467
Q18	105	2	2	4	3.47	.056	.573	.328	-.493	.236	-.717	.467
Q19	105	2	2	4	3.11	.039	.400	.160	.942	.236	2.439	.467
Q20	105	2	2	4	3.03	.061	.627	.393	-.020	.236	-.399	.467
Q21	105	2	2	4	3.18	.054	.551	.303	.073	.236	-.015	.467
Q22	105	3	1	4	2.77	.068	.697	.486	-.872	.236	1.072	.467
Q23	105	2	2	4	3.00	.061	.620	.385	.000	.236	-.334	.467
Q24	105	3	1	4	3.04	.062	.634	.402	-.952	.236	2.788	.467
Q25	105	2	2	4	3.27	.058	.593	.351	-.151	.236	-.504	.467
Q26	105	2	2	4	2.78	.063	.650	.423	.249	.236	-.681	.467
Q27	105	2	2	4	2.83	.060	.612	.374	.109	.236	-.412	.467
Q28	105	2	2	4	3.08	.040	.409	.167	.570	.236	2.805	.467
Q29	105	2	2	4	3.21	.060	.615	.379	-.157	.236	-.494	.467
Q30	105	2	2	4	3.21	.062	.631	.398	-.195	.236	-.576	.467
Q31	105	2	2	4	3.51	.051	.521	.271	-.266	.236	-1.464	.467
Q32	105	3	1	4	3.14	.066	.671	.451	-.758	.236	1.557	.467

Valid N	105											

Table 11.1 Descriptive Statistics of survey questions (Q1 - Q32) and important factors

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
HF	105	1	2	3	2.90	.030	.308	.095	-2.619	.236	4.952	.467
OQ	105	2	1	3	2.42	.059	.601	.361	-.494	.236	-.626	.467
ITS	105	2	1	3	2.10	.057	.581	.337	-.005	.236	-.028	.467
Ocm	105	1	2	3	2.92	.026	.267	.071	-3.241	.236	8.672	.467
PMS	105	1	2	3	2.88	.032	.331	.110	-2.318	.236	3.436	.467
OPMM	105	2	1	3	2.39	.067	.686	.471	-.686	.236	-.651	.467
Valid N	105											

Table 11.2 Descriptive Statistics of important factors

Appendix 12. Cross tabulation of position in organisation and Q1- Q32 answers of Likert scale scores

Position in Organisation * Q1

Crosstab

			Q1		
			3	4	Total
Position in Organisation	1. PM	Count	22	34	56
		Expected Count	24.0	32.0	56.0
		% within Q1	48.9%	56.7%	53.3%
	2.BM	Count	18	20	38
		Expected Count	16.3	21.7	38.0
		% within Q1	40.0%	33.3%	36.2%
	Other	Count	5	6	11
		Expected Count	4.7	6.3	11.0
		% within Q1	11.1%	10.0%	10.5%
	Total	Count	45	60	105
		Expected Count	45.0	60.0	105.0
		% within Q1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.638[a]	2	.727
Likelihood Ratio	.638	2	.727
N of Valid Cases	105		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.71.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.004	.009	.400	.727[c]
		Position in Organisation Dependent	.003	.008	.400	.727[c]

	Q1 Dependent	.004	.011	.400	.727[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.078	.727
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q2

Crosstab

			Q2		
			3	4	Total
Position in Organisation	1. PM	Count	27	29	56
		Expected Count	28.8	27.2	56.0
		% within Q2	50.0%	56.9%	53.3%
	2.BM	Count	20	18	38
		Expected Count	19.5	18.5	38.0
		% within Q2	37.0%	35.3%	36.2%
	Other	Count	7	4	11
		Expected Count	5.7	5.3	11.0
		% within Q2	13.0%	7.8%	10.5%
	Total	Count	54	51	105
		Expected Count	54.0	51.0	105.0
		% within Q2	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.910[a]	2	.634
Likelihood Ratio	.920	2	.631
N of Valid Cases	105		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.34.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.005	.011	.484	.631[c]
		Position in Organisation Dependent	.005	.010	.484	.631[c]
		Q2 Dependent	.006	.013	.484	.631[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.093	.634
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q3

Crosstab

			Q3				
			1	2	3	4	Total
Position in Organisation	1. PM	Count	0	3	29	24	

		Expected Count	2.7	5.3	27.7	20.3	5
		% within Q3	.0%	30.0%	55.8%	63.2%	53.
	2.BM	Count	5	6	16	11	
		Expected Count	1.8	3.6	18.8	13.8	3
		% within Q3	100.0%	60.0%	30.8%	28.9%	36.
	Other	Count	0	1	7	3	
		Expected Count	.5	1.0	5.4	4.0	1
		% within Q3	.0%	10.0%	13.5%	7.9%	10.
	Total	Count	5	10	52	38	
		Expected Count	5.0	10.0	52.0	38.0	10
		% within Q3	100.0%	100.0%	100.0%	100.0%	100.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.808[a]	6	.032
Likelihood Ratio	15.098	6	.020
N of Valid Cases	105		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .52.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.071	.028	2.443	.020[c]
		Position in Organisation Dependent	.077	.031	2.443	.020[c]
		Q3 Dependent	.066	.025	2.443	.020[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.341	.032
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q4

Crosstab

			Q4			
			2	3	4	Total
Position in Organisation	1. PM	Count	5	32	19	56
		Expected Count	4.3	34.7	17.1	56.0
		% within Q4	62.5%	49.2%	59.4%	53.3%
	2.BM	Count	2	27	9	38
		Expected Count	2.9	23.5	11.6	38.0
		% within Q4	25.0%	41.5%	28.1%	36.2%
	Other	Count	1	6	4	11
		Expected Count	.8	6.8	3.4	11.0
		% within Q4	12.5%	9.2%	12.5%	10.5%
	Total	Count	8	65	32	105
		Expected Count	8.0	65.0	32.0	105.0
		% within Q4	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.169[a]	4	.705
Likelihood Ratio	2.213	4	.697
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.169[a]	4	.705
Likelihood Ratio	2.213	4	.697

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.012	.016	.755	.697[c]
		Position in Organisation Dependent	.011	.015	.755	.697[c]
		Q4 Dependent	.012	.016	.755	.697[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.142	.705
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q5

Crosstab

			Q5			
			2	3	4	Total
Position in Organisation	1. PM	Count	1	33	22	56

		Expected Count	.5	31.5	24.0	56.0
		% within Q5	100.0%	55.9%	48.9%	53.3%
	2.BM	Count	0	17	21	38
		Expected Count	.4	21.4	16.3	38.0
		% within Q5	.0%	28.8%	46.7%	36.2%
	Other	Count	0	9	2	11
		Expected Count	.1	6.2	4.7	11.0
		% within Q5	.0%	15.3%	4.4%	10.5%
	Total	Count	1	59	45	105
		Expected Count	1.0	59.0	45.0	105.0
		% within Q5	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.217[a]	4	.184
Likelihood Ratio	6.830	4	.145
N of Valid Cases	105		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .10.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.039	.026	1.455	.145[c]
		Position in Organisation Dependent	.035	.024	1.455	.145[c]
		Q5 Dependent	.044	.030	1.455	.145[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.236	.184
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q6

Crosstab

			Q6			
			2	3	4	Total
Position in Organisation	1. PM	Count	4	42	10	56
		Expected Count	3.7	40.5	11.7	56.0
		% within Q6	57.1%	55.3%	45.5%	53.3%
	2.BM	Count	1	25	12	38
		Expected Count	2.5	27.5	8.0	38.0
		% within Q6	14.3%	32.9%	54.5%	36.2%
	Other	Count	2	9	0	11
		Expected Count	.7	8.0	2.3	11.0
		% within Q6	28.6%	11.8%	.0%	10.5%
	Total	Count	7	76	22	105
		Expected Count	7.0	76.0	22.0	105.0
		% within Q6	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.160[a]	4	.086
Likelihood Ratio	9.772	4	.044
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.160[a]	4	.086
Likelihood Ratio	9.772	4	.044

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .73.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.055	.025	2.110	.044[c]
		Position in Organisation Dependent	.050	.023	2.110	.044[c]
		Q6 Dependent	.063	.028	2.110	.044[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.269	.086
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q7

Crosstab

			Q7			
			2	3	4	Total
Position in Organisation	1. PM	Count	0	25	31	56

		Expected Count	.5	26.7	28.8	56.0
		% within Q7	.0%	50.0%	57.4%	53.3%
	2.BM	Count	0	17	21	38
		Expected Count	.4	18.1	19.5	38.0
		% within Q7	.0%	34.0%	38.9%	36.2%
	Other	Count	1	8	2	11
		Expected Count	.1	5.2	5.7	11.0
		% within Q7	100.0%	16.0%	3.7%	10.5%
	Total	Count	1	50	54	105
		Expected Count	1.0	50.0	54.0	105.0
		% within Q7	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.813[a]	4	.012
Likelihood Ratio	9.363	4	.053
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .10.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.053	.033	1.567	.053[c]
		Position in Organisation Dependent	.047	.030	1.567	.053[c]
		Q7 Dependent	.060	.036	1.567	.053[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.330	.012
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q8

Crosstab

			Q8			
			2	3	4	Total
Position in Organisation	1. PM	Count	4	41	11	56
		Expected Count	4.8	39.5	11.7	56.0
		% within Q8	44.4%	55.4%	50.0%	53.3%
	2.BM	Count	3	26	9	38
		Expected Count	3.3	26.8	8.0	38.0
		% within Q8	33.3%	35.1%	40.9%	36.2%
	Other	Count	2	7	2	11
		Expected Count	.9	7.8	2.3	11.0
		% within Q8	22.2%	9.5%	9.1%	10.5%
	Total	Count	9	74	22	105
		Expected Count	9.0	74.0	22.0	105.0
		% within Q8	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.716[a]	4	.788
Likelihood Ratio	1.432	4	.839
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.716[a]	4	.788
Likelihood Ratio	1.432	4	.839

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .94.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.008	.014	.556	.839[c]
		Position in Organisation Dependent	.007	.013	.556	.839[c]
		Q8 Dependent	.009	.016	.556	.839[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.127	.788
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q9

Crosstab

			Q9			
			2	3	4	Total
Position in Organisation	1. PM	Count	9	27	20	56

		Expected Count	6.4	32.0	17.6	56.0
		% within Q9	75.0%	45.0%	60.6%	53.3%
	2.BM	Count	3	25	10	38
		Expected Count	4.3	21.7	11.9	38.0
		% within Q9	25.0%	41.7%	30.3%	36.2%
	Other	Count	0	8	3	11
		Expected Count	1.3	6.3	3.5	11.0
		% within Q9	.0%	13.3%	9.1%	10.5%
	Total	Count	12	60	33	105
		Expected Count	12.0	60.0	33.0	105.0
		% within Q9	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.178[a]	4	.269
Likelihood Ratio	6.358	4	.174
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.26.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.032	.020	1.630	.174[c]
		Position in Organisation Dependent	.032	.020	1.630	.174[c]
		Q9 Dependent	.033	.020	1.630	.174[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.217	.269
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q10

Crosstab

			Q10			
			2	3	4	Total
Position in Organisation	1. PM	Count	2	25	29	56
		Expected Count	1.6	29.3	25.1	56.0
		% within Q10	66.7%	45.5%	61.7%	53.3%
	2.BM	Count	1	22	15	38
		Expected Count	1.1	19.9	17.0	38.0
		% within Q10	33.3%	40.0%	31.9%	36.2%
	Other	Count	0	8	3	11
		Expected Count	.3	5.8	4.9	11.0
		% within Q10	.0%	14.5%	6.4%	10.5%
	Total	Count	3	55	47	105
		Expected Count	3.0	55.0	47.0	105.0
		% within Q10	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.757[a]	4	.440
Likelihood Ratio	4.099	4	.393
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.757[a]	4	.440
Likelihood Ratio	4.099	4	.393

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .31.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.022	.020	1.115	.393[c]
		Position in Organisation Dependent	.021	.019	1.115	.393[c]
		Q10 Dependent	.024	.022	1.115	.393[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.186	.440
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q11

Crosstab

			Q11			
			2	3	4	Total
Position in Organisation	1. PM	Count	7	34	15	56

		Expected Count	7.5	33.1	15.5	56.0
		% within Q11	50.0%	54.8%	51.7%	53.3%
	2.BM	Count	6	21	11	38
		Expected Count	5.1	22.4	10.5	38.0
		% within Q11	42.9%	33.9%	37.9%	36.2%
	Other	Count	1	7	3	11
		Expected Count	1.5	6.5	3.0	11.0
		% within Q11	7.1%	11.3%	10.3%	10.5%
	Total	Count	14	62	29	105
		Expected Count	14.0	62.0	29.0	105.0
		% within Q11	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.546[a]	4	.969
Likelihood Ratio	.557	4	.968
N of Valid Cases	105		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.47.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.003	.007	.378	.968[c]
		Position in Organisation Dependent	.003	.007	.378	.968[c]
		Q11 Dependent	.003	.008	.378	.968[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.072	.969
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q12

Crosstab

			Q12			
			2	3	4	Total
Position in Organisation	1. PM	Count	2	48	6	56
		Expected Count	4.3	42.7	9.1	56.0
		% within Q12	25.0%	60.0%	35.3%	53.3%
	2.BM	Count	4	26	8	38
		Expected Count	2.9	29.0	6.2	38.0
		% within Q12	50.0%	32.5%	47.1%	36.2%
	Other	Count	2	6	3	11
		Expected Count	.8	8.4	1.8	11.0
		% within Q12	25.0%	7.5%	17.6%	10.5%
	Total	Count	8	80	17	105
		Expected Count	8.0	80.0	17.0	105.0
		% within Q12	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.307[a]	4	.121
Likelihood Ratio	7.114	4	.130
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.307[a]	4	.121
Likelihood Ratio	7.114	4	.130

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.041	.030	1.346	.130[c]
		Position in Organisation Dependent	.036	.027	1.346	.130[c]
		Q12 Dependent	.049	.035	1.346	.130[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.255	.121
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q13

Crosstab

			Q13			
			2	3	4	Total
Position in Organisation	1. PM	Count	11	36	9	56

		Expected Count	9.1	34.7	12.3	56.0
		% within Q13	64.7%	55.4%	39.1%	53.3%
	2.BM	Count	6	24	8	38
		Expected Count	6.2	23.5	8.3	38.0
		% within Q13	35.3%	36.9%	34.8%	36.2%
	Other	Count	0	5	6	11
		Expected Count	1.8	6.8	2.4	11.0
		% within Q13	.0%	7.7%	26.1%	10.5%
	Total	Count	17	65	23	105
		Expected Count	17.0	65.0	23.0	105.0
		% within Q13	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.972[a]	4	.062
Likelihood Ratio	9.281	4	.054
N of Valid Cases	105		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.78.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.047	.026	1.804	.054[c]
		Position in Organisation Dependent	.047	.025	1.804	.054[c]
		Q13 Dependent	.048	.026	1.804	.054[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.281	.062
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q14

Crosstab

			Q14		
			3	4	Total
Position in Organisation	1. PM	Count	45	11	56
		Expected Count	41.1	14.9	56.0
		% within Q14	58.4%	39.3%	53.3%
	2.BM	Count	25	13	38
		Expected Count	27.9	10.1	38.0
		% within Q14	32.5%	46.4%	36.2%
	Other	Count	7	4	11
		Expected Count	8.1	2.9	11.0
		% within Q14	9.1%	14.3%	10.5%
	Total	Count	77	28	105
		Expected Count	77.0	28.0	105.0
		% within Q14	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.048[a]	2	.218
Likelihood Ratio	3.051	2	.217
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.048[a]	2	.218
Likelihood Ratio	3.051	2	.217

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.93.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.019	.022	.880	.217[c]
		Position in Organisation Dependent	.015	.018	.880	.217[c]
		Q14 Dependent	.025	.028	.880	.217[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.168	.218
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q15

Crosstab

			Q15			
			2	3	4	Total
Position in Organisation	1. PM	Count	4	44	8	56

		Expected Count	6.4	40.5	9.1	56.0
		% within Q15	33.3%	57.9%	47.1%	53.3%
	2.BM	Count	4	25	9	38
		Expected Count	4.3	27.5	6.2	38.0
		% within Q15	33.3%	32.9%	52.9%	36.2%
	Other	Count	4	7	0	11
		Expected Count	1.3	8.0	1.8	11.0
		% within Q15	33.3%	9.2%	.0%	10.5%
	Total	Count	12	76	17	105
		Expected Count	12.0	76.0	17.0	105.0
		% within Q15	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.777[a]	4	.029
Likelihood Ratio	10.331	4	.035
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.26.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.057	.031	1.817	.035[c]
		Position in Organisation Dependent	.052	.028	1.817	.035[c]
		Q15 Dependent	.063	.034	1.817	.035[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.305	.029
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q16

Crosstab

			Q16			
			2	3	4	Total
Position in Organisation	1. PM	Count	13	36	7	56
		Expected Count	12.3	39.5	4.3	56.0
		% within Q16	56.5%	48.6%	87.5%	53.3%
	2.BM	Count	9	28	1	38
		Expected Count	8.3	26.8	2.9	38.0
		% within Q16	39.1%	37.8%	12.5%	36.2%
	Other	Count	1	10	0	11
		Expected Count	2.4	7.8	.8	11.0
		% within Q16	4.3%	13.5%	.0%	10.5%
	Total	Count	23	74	8	105
		Expected Count	23.0	74.0	8.0	105.0
		% within Q16	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.765[a]	4	.217
Likelihood Ratio	6.927	4	.140
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.765[a]	4	.217
Likelihood Ratio	6.927	4	.140

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.038	.023	1.613	.140[c]
		Position in Organisation Dependent	.035	.022	1.613	.140[c]
		Q16 Dependent	.043	.026	1.613	.140[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.228	.217
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q17

Crosstab

			Q17			
			2	3	4	Total
Position in Organisation	1. PM	Count	11	37	8	56

		Expected Count	10.7	37.3	8.0	56.0
		% within Q17	55.0%	52.9%	53.3%	53.3%
	2.BM	Count	9	27	2	38
		Expected Count	7.2	25.3	5.4	38.0
		% within Q17	45.0%	38.6%	13.3%	36.2%
	Other	Count	0	6	5	11
		Expected Count	2.1	7.3	1.6	11.0
		% within Q17	.0%	8.6%	33.3%	10.5%
	Total	Count	20	70	15	105
		Expected Count	20.0	70.0	15.0	105.0
		% within Q17	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.536[a]	4	.014
Likelihood Ratio	12.548	4	.014
N of Valid Cases	105		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.57.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.066	.031	2.079	.014[c]
		Position in Organisation Dependent	.064	.029	2.079	.014[c]
		Q17 Dependent	.069	.032	2.079	.014[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.327	.014
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q18

Crosstab

			Q18			
			2	3	4	Total
Position in Organisation	1. PM	Count	0	26	30	56
		Expected Count	2.1	25.6	28.3	56.0
		% within Q18	.0%	54.2%	56.6%	53.3%
	2.BM	Count	4	16	18	38
		Expected Count	1.4	17.4	19.2	38.0
		% within Q18	100.0%	33.3%	34.0%	36.2%
	Other	Count	0	6	5	11
		Expected Count	.4	5.0	5.6	11.0
		% within Q18	.0%	12.5%	9.4%	10.5%
	Total	Count	4	48	53	105
		Expected Count	4.0	48.0	53.0	105.0
		% within Q18	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.589[a]	4	.108
Likelihood Ratio	8.660	4	.070
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.589[a]	4	.108
Likelihood Ratio	8.660	4	.070

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .42.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.047	.022	2.044	.070[c]
		Position in Organisation Dependent	.044	.022	2.044	.070[c]
		Q18 Dependent	.050	.022	2.044	.070[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.260	.108
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q19

Crosstab

			Q19			
			2	3	4	Total
Position in Organisation	1. PM	Count	3	45	8	56

		Expected Count	1.6	46.4	8.0	56.0
		% within Q19	100.0%	51.7%	53.3%	53.3%
	2.BM	Count	0	32	6	38
		Expected Count	1.1	31.5	5.4	38.0
		% within Q19	.0%	36.8%	40.0%	36.2%
	Other	Count	0	10	1	11
		Expected Count	.3	9.1	1.6	11.0
		% within Q19	.0%	11.5%	6.7%	10.5%
	Total	Count	3	87	15	105
		Expected Count	3.0	87.0	15.0	105.0
		% within Q19	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.030[a]	4	.553
Likelihood Ratio	4.203	4	.379
N of Valid Cases	105		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .31.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.027	.015	1.691	.379[c]
		Position in Organisation Dependent	.021	.013	1.691	.379[c]
		Q19 Dependent	.037	.019	1.691	.379[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.167	.553
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q20

Crosstab

			Q20			
			2	3	4	Total
Position in Organisation	1. PM	Count	9	34	13	56
		Expected Count	10.1	34.1	11.7	56.0
		% within Q20	47.4%	53.1%	59.1%	53.3%
	2.BM	Count	9	25	4	38
		Expected Count	6.9	23.2	8.0	38.0
		% within Q20	47.4%	39.1%	18.2%	36.2%
	Other	Count	1	5	5	11
		Expected Count	2.0	6.7	2.3	11.0
		% within Q20	5.3%	7.8%	22.7%	10.5%
	Total	Count	19	64	22	105
		Expected Count	19.0	64.0	22.0	105.0
		% within Q20	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.116[a]	4	.130
Likelihood Ratio	6.855	4	.144
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.116[a]	4	.130
Likelihood Ratio	6.855	4	.144

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.99.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.035	.026	1.319	.144[c]
		Position in Organisation Dependent	.035	.026	1.319	.144[c]
		Q20 Dependent	.035	.026	1.319	.144[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.252	.130
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q21

Crosstab

			Q21			
			2	3	4	Total
Position in Organisation	1. PM	Count	3	37	16	56

		Expected Count	4.3	37.3	14.4	56.0
		% within Q21	37.5%	52.9%	59.3%	53.3%
	2.BM	Count	2	27	9	38
		Expected Count	2.9	25.3	9.8	38.0
		% within Q21	25.0%	38.6%	33.3%	36.2%
	Other	Count	3	6	2	11
		Expected Count	.8	7.3	2.8	11.0
		% within Q21	37.5%	8.6%	7.4%	10.5%
	Total	Count	8	70	27	105
		Expected Count	8.0	70.0	27.0	105.0
		% within Q21	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.066[a]	4	.132
Likelihood Ratio	4.932	4	.294
N of Valid Cases	105		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.027	.027	.983	.294[c]
		Position in Organisation Dependent	.025	.025	.983	.294[c]
		Q21 Dependent	.029	.029	.983	.294[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.251	.132
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q22

Crosstab

			Q22				
			1	2	3	4	Total
Position in Organisation	1. PM	Count	0	12	40	4	
		Expected Count	3.7	10.1	37.3	4.8	5
		% within Q22	.0%	63.2%	57.1%	44.4%	53.
	2.BM	Count	7	6	23	2	
		Expected Count	2.5	6.9	25.3	3.3	3
		% within Q22	100.0%	31.6%	32.9%	22.2%	36.
	Other	Count	0	1	7	3	
		Expected Count	.7	2.0	7.3	.9	1
		% within Q22	.0%	5.3%	10.0%	33.3%	10.
	Total	Count	7	19	70	9	
		Expected Count	7.0	19.0	70.0	9.0	10
		% within Q22	100.0%	100.0%	100.0%	100.0%	100.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.818[a]	6	.004
Likelihood Ratio	19.233	6	.004
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.818[a]	6	.004
Likelihood Ratio	19.233	6	.004

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .73.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.096	.033	2.739	.004[c]
		Position in Organisation Dependent	.097	.035	2.739	.004[c]
		Q22 Dependent	.094	.031	2.739	.004[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.390	.004
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q23

Crosstab

			Q23			
			2	3	4	Total
Position in Organisation	1. PM	Count	9	42	5	56

		Expected Count	10.7	34.7	10.7	56.0
		% within Q23	45.0%	64.6%	25.0%	53.3%
	2.BM	Count	7	18	13	38
		Expected Count	7.2	23.5	7.2	38.0
		% within Q23	35.0%	27.7%	65.0%	36.2%
	Other	Count	4	5	2	11
		Expected Count	2.1	6.8	2.1	11.0
		% within Q23	20.0%	7.7%	10.0%	10.5%
	Total	Count	20	65	20	105
		Expected Count	20.0	65.0	20.0	105.0
		% within Q23	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.931[a]	4	.012
Likelihood Ratio	12.504	4	.014
N of Valid Cases	105		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 2.10.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.064	.035	1.789	.014[c]
		Position in Organisation Dependent	.063	.035	1.789	.014[c]
		Q23 Dependent	.064	.036	1.789	.014[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.331	.012
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q24

Crosstab

			Q24				
			1	2	3	4	Total
Position in Organisation	1. PM	Count	0	5	42	9	
		Expected Count	2.1	3.7	40.0	10.1	5
		% within Q24	.0%	71.4%	56.0%	47.4%	53.
	2.BM	Count	4	2	26	6	
		Expected Count	1.4	2.5	27.1	6.9	3
		% within Q24	100.0%	28.6%	34.7%	31.6%	36.
	Other	Count	0	0	7	4	
		Expected Count	.4	.7	7.9	2.0	1
		% within Q24	.0%	.0%	9.3%	21.1%	10.
	Total	Count	4	7	75	19	
		Expected Count	4.0	7.0	75.0	19.0	10
		% within Q24	100.0%	100.0%	100.0%	100.0%	100.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.837[a]	6	.094
Likelihood Ratio	12.164	6	.058
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.837[a]	6	.094
Likelihood Ratio	12.164	6	.058

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .42.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.065	.026	2.342	.058[c]
		Position in Organisation Dependent	.062	.026	2.342	.058[c]
		Q24 Dependent	.068	.026	2.342	.058[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.306	.094
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q25

Crosstab

			Q25			
			2	3	4	Total
Position in Organisation	1. PM	Count	6	40	10	56

		Expected Count	4.3	32.5	19.2	56.0
		% within Q25	75.0%	65.6%	27.8%	53.3%
	2.BM	Count	2	15	21	38
		Expected Count	2.9	22.1	13.0	38.0
		% within Q25	25.0%	24.6%	58.3%	36.2%
	Other	Count	0	6	5	11
		Expected Count	.8	6.4	3.8	11.0
		% within Q25	.0%	9.8%	13.9%	10.5%
	Total	Count	8	61	36	105
		Expected Count	8.0	61.0	36.0	105.0
		% within Q25	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.511[a]	4	.004
Likelihood Ratio	16.614	4	.002
N of Valid Cases	105		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.087	.039	2.242	.002[c]
		Position in Organisation Dependent	.084	.038	2.242	.002[c]
		Q25 Dependent	.090	.040	2.242	.002[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.359	.004
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q26

Crosstab

			Q26			
			2	3	4	Total
Position in Organisation	1. PM	Count	16	36	4	56
		Expected Count	19.2	29.9	6.9	56.0
		% within Q26	44.4%	64.3%	30.8%	53.3%
	2.BM	Count	16	17	5	38
		Expected Count	13.0	20.3	4.7	38.0
		% within Q26	44.4%	30.4%	38.5%	36.2%
	Other	Count	4	3	4	11
		Expected Count	3.8	5.9	1.4	11.0
		% within Q26	11.1%	5.4%	30.8%	10.5%
	Total	Count	36	56	13	105
		Expected Count	36.0	56.0	13.0	105.0
		% within Q26	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.781[a]	4	.029
Likelihood Ratio	9.486	4	.050
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.781[a]	4	.029
Likelihood Ratio	9.486	4	.050

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.36.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.048	.031	1.499	.050[c]
		Position in Organisation Dependent	.048	.032	1.499	.050[c]
		Q26 Dependent	.047	.031	1.499	.050[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.305	.029
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q27

Crosstab

			Q27			
			2	3	4	Total
Position in Organisation	1. PM	Count	13	38	5	56

		Expected Count	16.0	33.6	6.4	56.0
		% within Q27	43.3%	60.3%	41.7%	53.3%
	2.BM	Count	15	17	6	38
		Expected Count	10.9	22.8	4.3	38.0
		% within Q27	50.0%	27.0%	50.0%	36.2%
	Other	Count	2	8	1	11
		Expected Count	3.1	6.6	1.3	11.0
		% within Q27	6.7%	12.7%	8.3%	10.5%
	Total	Count	30	63	12	105
		Expected Count	30.0	63.0	12.0	105.0
		% within Q27	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.899[a]	4	.207
Likelihood Ratio	5.893	4	.207
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.26.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.030	.025	1.226	.207[c]
		Position in Organisation Dependent	.030	.024	1.226	.207[c]
		Q27 Dependent	.031	.025	1.226	.207[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.231	.207
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q28

Crosstab

			Q28			
			2	3	4	Total
Position in Organisation	1. PM	Count	3	47	6	56
		Expected Count	2.7	46.4	6.9	56.0
		% within Q28	60.0%	54.0%	46.2%	53.3%
	2.BM	Count	2	32	4	38
		Expected Count	1.8	31.5	4.7	38.0
		% within Q28	40.0%	36.8%	30.8%	36.2%
	Other	Count	0	8	3	11
		Expected Count	.5	9.1	1.4	11.0
		% within Q28	.0%	9.2%	23.1%	10.5%
	Total	Count	5	87	13	105
		Expected Count	5.0	87.0	13.0	105.0
		% within Q28	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.939[a]	4	.568
Likelihood Ratio	2.970	4	.563
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.939[a]	4	.568
Likelihood Ratio	2.970	4	.563

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .52.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.019	.019	.980	.563[c]
		Position in Organisation Dependent	.015	.015	.980	.563[c]
		Q28 Dependent	.025	.025	.980	.563[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.165	.568
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q29

Crosstab

			Q29			
			2	3	4	Total
Position in Organisation	1. PM	Count	1	37	18	56

		Expected Count	5.9	32.5	17.6	56.0
		% within Q29	9.1%	60.7%	54.5%	53.3%
	2.BM	Count	7	19	12	38
		Expected Count	4.0	22.1	11.9	38.0
		% within Q29	63.6%	31.1%	36.4%	36.2%
	Other	Count	3	5	3	11
		Expected Count	1.2	6.4	3.5	11.0
		% within Q29	27.3%	8.2%	9.1%	10.5%
	Total	Count	11	61	33	105
		Expected Count	11.0	61.0	33.0	105.0
		% within Q29	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.703[a]	4	.030
Likelihood Ratio	11.540	4	.021
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.15.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.059	.031	1.902	.021[c]
		Position in Organisation Dependent	.058	.031	1.902	.021[c]
		Q29 Dependent	.060	.030	1.902	.021[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.304	.030
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q30

Crosstab

			Q30			
			2	3	4	Total
Position in Organisation	1. PM	Count	2	36	18	56
		Expected Count	6.4	31.5	18.1	56.0
		% within Q30	16.7%	61.0%	52.9%	53.3%
	2.BM	Count	10	17	11	38
		Expected Count	4.3	21.4	12.3	38.0
		% within Q30	83.3%	28.8%	32.4%	36.2%
	Other	Count	0	6	5	11
		Expected Count	1.3	6.2	3.6	11.0
		% within Q30	.0%	10.2%	14.7%	10.5%
	Total	Count	12	59	34	105
		Expected Count	12.0	59.0	34.0	105.0
		% within Q30	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.917[a]	4	.008
Likelihood Ratio	14.272	4	.006
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.917[a]	4	.008
Likelihood Ratio	14.272	4	.006

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.26.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.072	.033	2.110	.006[c]
		Position in Organisation Dependent	.072	.034	2.110	.006[c]
		Q30 Dependent	.073	.033	2.110	.006[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.342	.008
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q31

Crosstab

			Q31			
			2	3	4	Total
Position in Organisation	1. PM	Count	0	25	31	56

		Expected Count	.5	26.1	29.3	56.0
		% within Q31	.0%	51.0%	56.4%	53.3%
	2.BM	Count	0	20	18	38
		Expected Count	.4	17.7	19.9	38.0
		% within Q31	.0%	40.8%	32.7%	36.2%
	Other	Count	1	4	6	11
		Expected Count	.1	5.1	5.8	11.0
		% within Q31	100.0%	8.2%	10.9%	10.5%
	Total	Count	1	49	55	105
		Expected Count	1.0	49.0	55.0	105.0
		% within Q31	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.421[a]	4	.051
Likelihood Ratio	5.402	4	.248
N of Valid Cases	105		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .10.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.031	.027	1.113	.248[c]
		Position in Organisation Dependent	.027	.024	1.113	.248[c]
		Q31 Dependent	.035	.030	1.113	.248[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.287	.051
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Position in Organisation * Q32

Crosstab

			Q32				
			1	2	3	4	Total
Position in Organisation	1. PM	Count	0	2	40	14	
		Expected Count	1.6	4.3	34.7	15.5	5
		% within Q32	.0%	25.0%	61.5%	48.3%	53.
	2.BM	Count	3	6	20	9	
		Expected Count	1.1	2.9	23.5	10.5	3
		% within Q32	100.0%	75.0%	30.8%	31.0%	36.
	Other	Count	0	0	5	6	
		Expected Count	.3	.8	6.8	3.0	1
		% within Q32	.0%	.0%	7.7%	20.7%	10.
	Total	Count	3	8	65	29	
		Expected Count	3.0	8.0	65.0	29.0	10
		% within Q32	100.0%	100.0%	100.0%	100.0%	100.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.730[a]	6	.015
Likelihood Ratio	16.290	6	.012
N of Valid Cases	105		

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.730[a]	6	.015
Likelihood Ratio	16.290	6	.012

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .31.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.082	.033	2.376	.012[c]
		Position in Organisation Dependent	.083	.034	2.376	.012[c]
		Q32 Dependent	.082	.032	2.376	.012[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures[a]

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.361	.015
	N of Valid Cases	105	

a. Correlation statistics are available for numeric data only.

Appendix 13. Cross tabulation of implementation path used and Q1- Q32 answers Likert scale scores

S1-5 * Q1

Crosstab

			Q1		
			3	4	Total
S1-5	1	Count	5	8	13
		Expected Count	5.6	7.4	13.0
		% within Q1	11.1%	13.3%	12.4%
	2	Count	11	8	19
		Expected Count	8.1	10.9	19.0
		% within Q1	24.4%	13.3%	18.1%

	3	Count	14	21	35
		Expected Count	15.0	20.0	35.0
		% within Q1	31.1%	35.0%	33.3%
	4	Count	12	18	30
		Expected Count	12.9	17.1	30.0
		% within Q1	26.7%	30.0%	28.6%
	5	Count	3	5	8
		Expected Count	3.4	4.6	8.0
		% within Q1	6.7%	8.3%	7.6%
	Total	Count	45	60	105
		Expected Count	45.0	60.0	105.0
		% within Q1	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.167[a]	4	.705
Likelihood Ratio	2.147	4	.709
Linear-by-Linear Association	.357	1	.550
N of Valid Cases	105		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.43.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Appro
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.009	.013	.733	
		S1-5 Dependent	.007	.009	.733	
		Q1 Dependent	.015	.020	.733	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.142			.705
Interval by Interval	Pearson's R	.059	.097	.596	.552[c]
Ordinal by Ordinal	Spearman Correlation	.067	.097	.686	.494[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q2

Crosstab

			Q2		
			3	4	Total
S1-5	1	Count	2	11	13
		Expected Count	6.7	6.3	13.0
		% within Q2	3.7%	21.6%	12.4%
	2	Count	15	4	19
		Expected Count	9.8	9.2	19.0
		% within Q2	27.8%	7.8%	18.1%
	3	Count	20	15	35
		Expected Count	18.0	17.0	35.0
		% within Q2	37.0%	29.4%	33.3%
	4	Count	13	17	30
		Expected Count	15.4	14.6	30.0
		% within Q2	24.1%	33.3%	28.6%
	5	Count	4	4	8
		Expected Count	4.1	3.9	8.0
		% within Q2	7.4%	7.8%	7.6%
	Total	Count	54	51	105
		Expected Count	54.0	51.0	105.0
		% within Q2	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.772[a]	4	.008
Likelihood Ratio	14.808	4	.005
Linear-by-Linear Association	.066	1	.798
N of Valid Cases	105		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.89.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Appro
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.065	.031	2.088	
		S1-5 Dependent	.047	.023	2.088	
		Q2 Dependent	.102	.049	2.088	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.341			.008
Interval by Interval	Pearson's R	-.025	.098	-.255	.799[c]
Ordinal by Ordinal	Spearman Correlation	.016	.100	.162	.872[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q3

Crosstab

			Q3				
			1	2	3	4	Total
S1-5	1	Count	3	1	4	5	13
		Expected Count	.6	1.2	6.4	4.7	13.0
		% within Q3	60.0%	10.0%	7.7%	13.2%	12.4%
	2	Count	0	2	14	3	19
		Expected Count	.9	1.8	9.4	6.9	19.0
		% within Q3	.0%	20.0%	26.9%	7.9%	18.1%
	3	Count	1	5	17	12	35
		Expected Count	1.7	3.3	17.3	12.7	35.0
		% within Q3	20.0%	50.0%	32.7%	31.6%	33.3%
	4	Count	1	1	14	14	30
		Expected Count	1.4	2.9	14.9	10.9	30.0
		% within Q3	20.0%	10.0%	26.9%	36.8%	28.6%
	5	Count	0	1	3	4	8
		Expected Count	.4	.8	4.0	2.9	8.0
		% within Q3	.0%	10.0%	5.8%	10.5%	7.6%
	Total	Count	5	10	52	38	105
		Expected Count	5.0	10.0	52.0	38.0	105.0
		% within Q3	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.041[a]	12	.066
Likelihood Ratio	17.570	12	.129
Linear-by-Linear Association	4.736	1	.030
N of Valid Cases	105		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .38.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Appro
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.065	.029	2.194	
		S1-5 Dependent	.056	.025	2.194	
		Q3 Dependent	.077	.034	2.194	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.400			.066
Interval by Interval	Pearson's R	.213	.106	2.217	.029[c]
Ordinal by Ordinal	Spearman Correlation	.199	.098	2.066	.041[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q4

Crosstab

			Q4			
			2	3	4	Total
S1-5	1	Count	1	10	2	13
		Expected Count	1.0	8.0	4.0	13.0
		% within Q4	12.5%	15.4%	6.2%	12.4%
	2	Count	1	15	3	19
		Expected Count	1.4	11.8	5.8	19.0
		% within Q4	12.5%	23.1%	9.4%	18.1%
	3	Count	1	19	15	35

		Expected Count	2.7	21.7	10.7	35.0
		% within Q4	12.5%	29.2%	46.9%	33.3%
	4	Count	5	18	7	30
		Expected Count	2.3	18.6	9.1	30.0
		% within Q4	62.5%	27.7%	21.9%	28.6%
	5	Count	0	3	5	8
		Expected Count	.6	5.0	2.4	8.0
		% within Q4	.0%	4.6%	15.6%	7.6%
	Total	Count	8	65	32	105
		Expected Count	8.0	65.0	32.0	105.0
		% within Q4	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.764[a]	8	.064
Likelihood Ratio	14.653	8	.066
Linear-by-Linear Association	1.368	1	.242
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .61.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Appro
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.060	.029	2.019	
		S1-5 Dependent	.047	.023	2.019	
		Q4 Dependent	.082	.039	2.019	

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.351			.064
Interval by Interval	Pearson's R	.115	.094	1.172	.244[c]
Ordinal by Ordinal	Spearman Correlation	.104	.097	1.058	.293[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q5

Crosstab

			Q5			
			2	3	4	Total
S1-5	1	Count	0	3	10	13
		Expected Count	.1	7.3	5.6	13.0
		% within Q5	.0%	5.1%	22.2%	12.4%
	2	Count	1	10	8	19
		Expected Count	.2	10.7	8.1	19.0
		% within Q5	100.0%	16.9%	17.8%	18.1%
	3	Count	0	25	10	35
		Expected Count	.3	19.7	15.0	35.0
		% within Q5	.0%	42.4%	22.2%	33.3%
	4	Count	0	17	13	30
		Expected Count	.3	16.9	12.9	30.0
		% within Q5	.0%	28.8%	28.9%	28.6%
	5	Count	0	4	4	8
		Expected Count	.1	4.5	3.4	8.0
		% within Q5	.0%	6.8%	8.9%	7.6%
	Total	Count	1	59	45	105
		Expected Count	1.0	59.0	45.0	105.0
		% within Q5	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.894[a]	8	.085
Likelihood Ratio	12.948	8	.114
Linear-by-Linear Association	1.169	1	.280
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .08.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.056	.029	1.901	.114[c]
		S1-5 Dependent	.041	.022	1.901	.114[c]
		Q5 Dependent	.084	.042	1.901	.114[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.342			.085
Interval by Interval	Pearson's R	-.106	.100	-1.082	.282[c]
Ordinal by Ordinal	Spearman Correlation	-.088	.102	-.892	.374[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q6

Crosstab

			Q6			
			2	3	4	Total
S1-5	1	Count	1	6	6	13
		Expected Count	.9	9.4	2.7	13.0
		% within Q6	14.3%	7.9%	27.3%	12.4%
	2	Count	1	13	5	19
		Expected Count	1.3	13.8	4.0	19.0
		% within Q6	14.3%	17.1%	22.7%	18.1%
	3	Count	2	26	7	35
		Expected Count	2.3	25.3	7.3	35.0
		% within Q6	28.6%	34.2%	31.8%	33.3%
	4	Count	1	25	4	30
		Expected Count	2.0	21.7	6.3	30.0
		% within Q6	14.3%	32.9%	18.2%	28.6%
	5	Count	2	6	0	8
		Expected Count	.5	5.8	1.7	8.0
		% within Q6	28.6%	7.9%	.0%	7.6%
	Total	Count	7	76	22	105
		Expected Count	7.0	76.0	22.0	105.0
		% within Q6	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.180[a]	8	.106
Likelihood Ratio	12.546	8	.128
Linear-by-Linear Association	6.677	1	.010
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .53.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.054	.027	1.951	.128[c]
		S1-5 Dependent	.040	.020	1.951	.128[c]
		Q6 Dependent	.081	.040	1.951	.128[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.334			.106
Interval by Interval	Pearson's R	-.253	.101	-2.658	.009[c]
Ordinal by Ordinal	Spearman Correlation	-.247	.098	-2.585	.011[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q7

Crosstab

			Q7			
			2	3	4	Total
S1-5	1	Count	0	3	10	13
		Expected Count	.1	6.2	6.7	13.0
		% within Q7	.0%	6.0%	18.5%	12.4%
	2	Count	0	10	9	19
		Expected Count	.2	9.0	9.8	19.0
		% within Q7	.0%	20.0%	16.7%	18.1%
	3	Count	1	18	16	35

		Expected Count	.3	16.7	18.0	35.0
		% within Q7	100.0%	36.0%	29.6%	33.3%
	4	Count	0	15	15	30
		Expected Count	.3	14.3	15.4	30.0
		% within Q7	.0%	30.0%	27.8%	28.6%
	5	Count	0	4	4	8
		Expected Count	.1	3.8	4.1	8.0
		% within Q7	.0%	8.0%	7.4%	7.6%
	Total	Count	1	50	54	105
		Expected Count	1.0	50.0	54.0	105.0
		% within Q7	100.0%	100.0%	100.0%	100.0%

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.027	.019	1.408	.624[c]
		S1-5 Dependent	.020	.014	1.408	.624[c]
		Q7 Dependent	.040	.027	1.408	.624[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.229			.665
Interval by Interval	Pearson's R	-.106	.092	-1.083	.281[c]
Ordinal by Ordinal	Spearman Correlation	-.090	.096	-.917	.361[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q8

Crosstab

			Q8			
			2	3	4	Total
S1-5	1	Count	1	8	4	13
		Expected Count	1.1	9.2	2.7	13.0
		% within Q8	11.1%	10.8%	18.2%	12.4%
	2	Count	1	15	3	19
		Expected Count	1.6	13.4	4.0	19.0
		% within Q8	11.1%	20.3%	13.6%	18.1%
	3	Count	2	26	7	35
		Expected Count	3.0	24.7	7.3	35.0
		% within Q8	22.2%	35.1%	31.8%	33.3%
	4	Count	3	20	7	30
		Expected Count	2.6	21.1	6.3	30.0
		% within Q8	33.3%	27.0%	31.8%	28.6%
	5	Count	2	5	1	8
		Expected Count	.7	5.6	1.7	8.0
		% within Q8	22.2%	6.8%	4.5%	7.6%
	Total	Count	9	74	22	105
		Expected Count	9.0	74.0	22.0	105.0
		% within Q8	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.934[a]	8	.765
Likelihood Ratio	4.141	8	.844
Linear-by-Linear Association	.998	1	.318
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .69.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.017	.018	.961	.844[c]
		S1-5 Dependent	.013	.014	.961	.844[c]
		Q8 Dependent	.025	.026	.961	.844[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.212			.765
Interval by Interval	Pearson's R	-.098	.104	-.999	.320[c]
Ordinal by Ordinal	Spearman Correlation	-.083	.103	-.850	.397[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q9

Crosstab

			Q9			
			2	3	4	Total
S1-5	1	Count	1	6	6	13
		Expected Count	1.5	7.4	4.1	13.0
		% within Q9	8.3%	10.0%	18.2%	12.4%
	2	Count	1	13	5	19
		Expected Count	2.2	10.9	6.0	19.0
		% within Q9	8.3%	21.7%	15.2%	18.1%

	3	Count	4	22	9	35
		Expected Count	4.0	20.0	11.0	35.0
		% within Q9	33.3%	36.7%	27.3%	33.3%
	4	Count	5	14	11	30
		Expected Count	3.4	17.1	9.4	30.0
		% within Q9	41.7%	23.3%	33.3%	28.6%
	5	Count	1	5	2	8
		Expected Count	.9	4.6	2.5	8.0
		% within Q9	8.3%	8.3%	6.1%	7.6%
	Total	Count	12	60	33	105
		Expected Count	12.0	60.0	33.0	105.0
		% within Q9	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.819[a]	8	.777
Likelihood Ratio	4.849	8	.774
Linear-by-Linear Association	.737	1	.391
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .91.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.019	.017	1.118	.774[c]
		S1-5 Dependent	.016	.014	1.118	.774[c]
		Q9 Dependent	.025	.022	1.118	.774[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.209			.777
Interval by Interval	Pearson's R	-.084	.098	-.857	.393[c]
Ordinal by Ordinal	Spearman Correlation	-.065	.099	-.662	.510[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q10

Crosstab

			Q10			
			2	3	4	Total
S1-5	1	Count	0	6	7	13
		Expected Count	.4	6.8	5.8	13.0
		% within Q10	.0%	10.9%	14.9%	12.4%
	2	Count	0	9	10	19
		Expected Count	.5	10.0	8.5	19.0
		% within Q10	.0%	16.4%	21.3%	18.1%
	3	Count	2	13	20	35
		Expected Count	1.0	18.3	15.7	35.0
		% within Q10	66.7%	23.6%	42.6%	33.3%
	4	Count	1	21	8	30
		Expected Count	.9	15.7	13.4	30.0
		% within Q10	33.3%	38.2%	17.0%	28.6%
	5	Count	0	6	2	8
		Expected Count	.2	4.2	3.6	8.0
		% within Q10	.0%	10.9%	4.3%	7.6%
	Total	Count	3	55	47	105
		Expected Count	3.0	55.0	47.0	105.0
		% within Q10	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.058[a]	8	.198
Likelihood Ratio	12.276	8	.139
Linear-by-Linear Association	4.462	1	.035
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .23.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.051	.025	2.001	.13
		S1-5 Dependent	.039	.020	2.001	.13
		Q10 Dependent	.073	.036	2.001	.13

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.309			.198
Interval by Interval	Pearson's R	-.207	.086	-2.149	.034[c]
Ordinal by Ordinal	Spearman Correlation	-.227	.090	-2.362	.020[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q11

Crosstab

			Q11			
			2	3	4	Total
S1-5	1	Count	2	8	3	13
		Expected Count	1.7	7.7	3.6	13.0
		% within Q11	14.3%	12.9%	10.3%	12.4%
	2	Count	0	13	6	19
		Expected Count	2.5	11.2	5.2	19.0
		% within Q11	.0%	21.0%	20.7%	18.1%
	3	Count	6	20	9	35
		Expected Count	4.7	20.7	9.7	35.0
		% within Q11	42.9%	32.3%	31.0%	33.3%
	4	Count	5	14	11	30
		Expected Count	4.0	17.7	8.3	30.0
		% within Q11	35.7%	22.6%	37.9%	28.6%
	5	Count	1	7	0	8
		Expected Count	1.1	4.7	2.2	8.0
		% within Q11	7.1%	11.3%	.0%	7.6%
	Total	Count	14	62	29	105
		Expected Count	14.0	62.0	29.0	105.0
		% within Q11	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.753[a]	8	.364
Likelihood Ratio	13.266	8	.103
Linear-by-Linear Association	.329	1	.567
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is 1.07.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.052	.014	3.514	.103[c]
		S1-5 Dependent	.042	.012	3.514	.103[c]
		Q11 Dependent	.068	.018	3.514	.103[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.277			.364
Interval by Interval	Pearson's R	-.056	.091	-.571	.569[c]
Ordinal by Ordinal	Spearman Correlation	-.051	.092	-.522	.603[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q12

Crosstab

			Q12			
			2	3	4	Total
S1-5	1	Count	0	13	0	13
		Expected Count	1.0	9.9	2.1	13.0
		% within Q12	.0%	16.2%	.0%	12.4%
	2	Count	1	13	5	19
		Expected Count	1.4	14.5	3.1	19.0
		% within Q12	12.5%	16.2%	29.4%	18.1%
	3	Count	4	27	4	35

		Expected Count	2.7	26.7	5.7	35.0
		% within Q12	50.0%	33.8%	23.5%	33.3%
	4	Count	1	22	7	30
		Expected Count	2.3	22.9	4.9	30.0
		% within Q12	12.5%	27.5%	41.2%	28.6%
	5	Count	2	5	1	8
		Expected Count	.6	6.1	1.3	8.0
		% within Q12	25.0%	6.2%	5.9%	7.6%
	Total	Count	8	80	17	105
		Expected Count	8.0	80.0	17.0	105.0
		% within Q12	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.852[a]	8	.158
Likelihood Ratio	13.556	8	.094
Linear-by-Linear Association	.000	1	.988
N of Valid Cases	105		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .61.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.059	.023	2.415	.094[c]
		S1-5 Dependent	.043	.018	2.415	.094[c]
		Q12 Dependent	.092	.036	2.415	.094[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.318			.158
Interval by Interval	Pearson's R	-.002	.089	-.015	.988[c]
Ordinal by Ordinal	Spearman Correlation	.011	.095	.116	.908[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q13

Crosstab

			Q13			
			2	3	4	Total
S1-5	1	Count	2	11	0	13
		Expected Count	2.1	8.0	2.8	13.0
		% within Q13	11.8%	16.9%	.0%	12.4%
	2	Count	1	10	8	19
		Expected Count	3.1	11.8	4.2	19.0
		% within Q13	5.9%	15.4%	34.8%	18.1%
	3	Count	4	21	10	35
		Expected Count	5.7	21.7	7.7	35.0
		% within Q13	23.5%	32.3%	43.5%	33.3%
	4	Count	10	18	2	30
		Expected Count	4.9	18.6	6.6	30.0
		% within Q13	58.8%	27.7%	8.7%	28.6%
	5	Count	0	5	3	8
		Expected Count	1.3	5.0	1.8	8.0
		% within Q13	.0%	7.7%	13.0%	7.6%
	Total	Count	17	65	23	105
		Expected Count	17.0	65.0	23.0	105.0
		% within Q13	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.189[a]	8	.007
Likelihood Ratio	24.729	8	.002
Linear-by-Linear Association	.504	1	.478
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is 1.30.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.098	.029	3.224	.002[c]
		S1-5 Dependent	.079	.024	3.224	.002[c]
		Q13 Dependent	.127	.037	3.224	.002[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

S1-5 * Q14

Crosstab

			Q14		
			3	4	Total
S1-5	1	Count	12	1	13
		Expected Count	9.5	3.5	13.0
		% within Q14	15.6%	3.6%	12.4%
	2	Count	12	7	19
		Expected Count	13.9	5.1	19.0

		% within Q14	15.6%	25.0%	18.1%
	3	Count	25	10	35
		Expected Count	25.7	9.3	35.0
		% within Q14	32.5%	35.7%	33.3%
	4	Count	24	6	30
		Expected Count	22.0	8.0	30.0
		% within Q14	31.2%	21.4%	28.6%
	5	Count	4	4	8
		Expected Count	5.9	2.1	8.0
		% within Q14	5.2%	14.3%	7.6%
	Total	Count	77	28	105
		Expected Count	77.0	28.0	105.0
		% within Q14	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.373[a]	4	.173
Likelihood Ratio	6.730	4	.151
Linear-by-Linear Association	.853	1	.356
N of Valid Cases	105		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.13.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.031	.022	1.376	.151[c]
		S1-5 Dependent	.022	.016	1.376	.151[c]
		Q14 Dependent	.055	.040	1.376	.151[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.239			.173
Interval by Interval	Pearson's R	.091	.093	.923	.358[c]
Ordinal by Ordinal	Spearman Correlation	.063	.096	.636	.526[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q15

Crosstab

			Q15			
			2	3	4	Total
S1-5	1	Count	0	13	0	13
		Expected Count	1.5	9.4	2.1	13.0
		% within Q15	.0%	17.1%	.0%	12.4%
	2	Count	4	11	4	19
		Expected Count	2.2	13.8	3.1	19.0
		% within Q15	33.3%	14.5%	23.5%	18.1%
	3	Count	3	29	3	35
		Expected Count	4.0	25.3	5.7	35.0
		% within Q15	25.0%	38.2%	17.6%	33.3%
	4	Count	4	18	8	30
		Expected Count	3.4	21.7	4.9	30.0
		% within Q15	33.3%	23.7%	47.1%	28.6%
	5	Count	1	5	2	8
		Expected Count	.9	5.8	1.3	8.0
		% within Q15	8.3%	6.6%	11.8%	7.6%
	Total	Count	12	76	17	105
		Expected Count	12.0	76.0	17.0	105.0

Crosstab

			Q15			
			2	3	4	Total
	1	Count	0	13	0	13
		Expected Count	1.5	9.4	2.1	13.0
		% within Q15	.0%	17.1%	.0%	12.4%
	2	Count	4	11	4	19
		Expected Count	2.2	13.8	3.1	19.0
		% within Q15	33.3%	14.5%	23.5%	18.1%
	3	Count	3	29	3	35
		Expected Count	4.0	25.3	5.7	35.0
		% within Q15	25.0%	38.2%	17.6%	33.3%
	4	Count	4	18	8	30
		Expected Count	3.4	21.7	4.9	30.0
		% within Q15	33.3%	23.7%	47.1%	28.6%
	5	Count	1	5	2	8
		Expected Count	.9	5.8	1.3	8.0
		% within Q15	8.3%	6.6%	11.8%	7.6%
		Count	12	76	17	105
		Expected Count	12.0	76.0	17.0	105.0
		% within Q15	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.628[a]	8	.125
Likelihood Ratio	15.690	8	.047
Linear-by-Linear Association	.963	1	.326
N of Valid Cases	105		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .91.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.066	.023	2.724	.047[c]
		S1-5 Dependent	.050	.018	2.724	.047[c]
		Q15 Dependent	.096	.034	2.724	.047[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.328			.125
Interval by Interval	Pearson's R	.096	.089	.981	.329[c]
Ordinal by Ordinal	Spearman Correlation	.107	.097	1.096	.276[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q16

Crosstab

			Q16			
			2	3	4	Total
S1-5	1	Count	2	11	0	13
		Expected Count	2.8	9.2	1.0	13.0
		% within Q16	8.7%	14.9%	.0%	12.4%
	2	Count	0	17	2	19
		Expected Count	4.2	13.4	1.4	19.0
		% within Q16	.0%	23.0%	25.0%	18.1%
	3	Count	14	19	2	35
		Expected Count	7.7	24.7	2.7	35.0

		% within Q16	60.9%	25.7%	25.0%	33.3%
	4	Count	6	20	4	30
		Expected Count	6.6	21.1	2.3	30.0
		% within Q16	26.1%	27.0%	50.0%	28.6%
	5	Count	1	7	0	8
		Expected Count	1.8	5.6	.6	8.0
		% within Q16	4.3%	9.5%	.0%	7.6%
	Total	Count	23	74	8	105
		Expected Count	23.0	74.0	8.0	105.0
		% within Q16	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.316[a]	8	.038
Likelihood Ratio	20.878	8	.007
Linear-by-Linear Association	.093	1	.760
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .61.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.088	.025	3.423	.007[c]
		S1-5 Dependent	.067	.019	3.423	.007[c]
		Q16 Dependent	.128	.035	3.423	.007[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.

Nominal by Nominal	Contingency Coefficient	.367			.038
Interval by Interval	Pearson's R	-.030	.078	-.304	.761[c]
Ordinal by Ordinal	Spearman Correlation	-.031	.084	-.315	.754[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q17

Crosstab

			Q17			
			2	3	4	Total
S1-5	1	Count	1	12	0	13
		Expected Count	2.5	8.7	1.9	13.0
		% within Q17	5.0%	17.1%	.0%	12.4%
	2	Count	2	12	5	19
		Expected Count	3.6	12.7	2.7	19.0
		% within Q17	10.0%	17.1%	33.3%	18.1%
	3	Count	5	26	4	35
		Expected Count	6.7	23.3	5.0	35.0
		% within Q17	25.0%	37.1%	26.7%	33.3%
	4	Count	11	15	4	30
		Expected Count	5.7	20.0	4.3	30.0
		% within Q17	55.0%	21.4%	26.7%	28.6%
	5	Count	1	5	2	8
		Expected Count	1.5	5.3	1.1	8.0
		% within Q17	5.0%	7.1%	13.3%	7.6%
	Total	Count	20	70	15	105
		Expected Count	20.0	70.0	15.0	105.0
		% within Q17	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.627[a]	8	.067
Likelihood Ratio	15.378	8	.052
Linear-by-Linear Association	.797	1	.372
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is 1.14.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.062	.027	2.233	.052[c]
		S1-5 Dependent	.049	.022	2.233	.052[c]
		Q17 Dependent	.085	.037	2.233	.052[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.350			.067
Interval by Interval	Pearson's R	-.088	.090	-.892	.375[c]
Ordinal by Ordinal	Spearman Correlation	-.117	.097	-1.197	.234[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q18

Crosstab

			Q18			
			2	3	4	Total
S1-5	1	Count	0	8	5	13
		Expected Count	.5	5.9	6.6	13.0
		% within Q18	.0%	16.7%	9.4%	12.4%
	2	Count	0	6	13	19
		Expected Count	.7	8.7	9.6	19.0
		% within Q18	.0%	12.5%	24.5%	18.1%
	3	Count	3	17	15	35
		Expected Count	1.3	16.0	17.7	35.0
		% within Q18	75.0%	35.4%	28.3%	33.3%
	4	Count	0	15	15	30
		Expected Count	1.1	13.7	15.1	30.0
		% within Q18	.0%	31.2%	28.3%	28.6%
	5	Count	1	2	5	8
		Expected Count	.3	3.7	4.0	8.0
		% within Q18	25.0%	4.2%	9.4%	7.6%
	Total	Count	4	48	53	105
		Expected Count	4.0	48.0	53.0	105.0
		% within Q18	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.725[a]	8	.218
Likelihood Ratio	12.028	8	.150
Linear-by-Linear Association	.005	1	.944
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .30.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.049	.022	2.170	.150[c]
		S1-5 Dependent	.038	.018	2.170	.150[c]
		Q18 Dependent	.069	.030	2.170	.150[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.304			.218
Interval by Interval	Pearson's R	-.007	.095	-.070	.944[c]
Ordinal by Ordinal	Spearman Correlation	.000	.097	-.002	.998[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q19

Crosstab

			Q19			
			2	3	4	Total
S1-5	1	Count	0	11	2	13
		Expected Count	.4	10.8	1.9	13.0
		% within Q19	.0%	12.6%	13.3%	12.4%
	2	Count	1	16	2	19
		Expected Count	.5	15.7	2.7	19.0
		% within Q19	33.3%	18.4%	13.3%	18.1%
	3	Count	0	30	5	35
		Expected Count	1.0	29.0	5.0	35.0
		% within Q19	.0%	34.5%	33.3%	33.3%

	4	Count	1	23	6	30
		Expected Count	.9	24.9	4.3	30.0
		% within Q19	33.3%	26.4%	40.0%	28.6%
	5	Count	1	7	0	8
		Expected Count	.2	6.6	1.1	8.0
		% within Q19	33.3%	8.0%	.0%	7.6%
	Total	Count	3	87	15	105
		Expected Count	3.0	87.0	15.0	105.0
		% within Q19	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.614[a]	8	.579
Likelihood Ratio	7.800	8	.453
Linear-by-Linear Association	.210	1	.647
N of Valid Cases	105		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .23.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.037	.017	2.082	.453[c]
		S1-5 Dependent	.025	.012	2.082	.453[c]
		Q19 Dependent	.069	.029	2.082	.453[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.243			.579

Interval by Interval	Pearson's R	-.045	.097	-.457	.649[c]
Ordinal by Ordinal	Spearman Correlation	-.027	.099	-.275	.784[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q20

Crosstab

			Q20			
			2	3	4	Total
S1-5	1	Count	2	5	6	13
		Expected Count	2.4	7.9	2.7	13.0
		% within Q20	10.5%	7.8%	27.3%	12.4%
	2	Count	2	9	8	19
		Expected Count	3.4	11.6	4.0	19.0
		% within Q20	10.5%	14.1%	36.4%	18.1%
	3	Count	10	22	3	35
		Expected Count	6.3	21.3	7.3	35.0
		% within Q20	52.6%	34.4%	13.6%	33.3%
	4	Count	5	23	2	30
		Expected Count	5.4	18.3	6.3	30.0
		% within Q20	26.3%	35.9%	9.1%	28.6%
	5	Count	0	5	3	8
		Expected Count	1.4	4.9	1.7	8.0
		% within Q20	.0%	7.8%	13.6%	7.6%
	Total	Count	19	64	22	105
		Expected Count	19.0	64.0	22.0	105.0
		% within Q20	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.678[a]	8	.006
Likelihood Ratio	22.702	8	.004
Linear-by-Linear Association	2.325	1	.127
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is 1.45.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.089	.033	2.670	.004[c]
		S1-5 Dependent	.073	.027	2.670	.004[c]
		Q20 Dependent	.115	.042	2.670	.004[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.414			.006
Interval by Interval	Pearson's R	-.150	.103	-1.535	.128[c]
Ordinal by Ordinal	Spearman Correlation	-.152	.105	-1.564	.121[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q21

Crosstab

	Q21

			2	3	4	Total
S1-5	1	Count	1	7	5	13
		Expected Count	1.0	8.7	3.3	13.0
		% within Q21	12.5%	10.0%	18.5%	12.4%
	2	Count	3	10	6	19
		Expected Count	1.4	12.7	4.9	19.0
		% within Q21	37.5%	14.3%	22.2%	18.1%
	3	Count	0	29	6	35
		Expected Count	2.7	23.3	9.0	35.0
		% within Q21	.0%	41.4%	22.2%	33.3%
	4	Count	1	21	8	30
		Expected Count	2.3	20.0	7.7	30.0
		% within Q21	12.5%	30.0%	29.6%	28.6%
	5	Count	3	3	2	8
		Expected Count	.6	5.3	2.1	8.0
		% within Q21	37.5%	4.3%	7.4%	7.6%
	Total	Count	8	70	27	105
		Expected Count	8.0	70.0	27.0	105.0
		% within Q21	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.847[a]	8	.011
Likelihood Ratio	17.884	8	.022
Linear-by-Linear Association	.947	1	.331
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .61.

Directional Measures

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.

Nominal by Nominal	Uncertainty Coefficient	Symmetric	.074	.031	2.349	.022[c]
		S1-5 Dependent	.057	.024	2.349	.022[c]
		Q21 Dependent	.104	.042	2.349	.022[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.399			.011
Interval by Interval	Pearson's R	-.095	.116	-.973	.333[c]
Ordinal by Ordinal	Spearman Correlation	-.079	.113	-.809	.420[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q22

Crosstab

			Q22				
			1	2	3	4	Total
S1-5	1	Count	0	6	7	0	13
		Expected Count	.9	2.4	8.7	1.1	13.0
		% within Q22	.0%	31.6%	10.0%	.0%	12.4%
	2	Count	0	1	15	3	19
		Expected Count	1.3	3.4	12.7	1.6	19.0
		% within Q22	.0%	5.3%	21.4%	33.3%	18.1%
	3	Count	6	6	21	2	35
		Expected Count	2.3	6.3	23.3	3.0	35.0
		% within Q22	85.7%	31.6%	30.0%	22.2%	33.3%
	4	Count	1	5	22	2	30

		Expected Count	2.0	5.4	20.0	2.6	30.0
		% within Q22	14.3%	26.3%	31.4%	22.2%	28.6%
	5	Count	0	1	5	2	8
		Expected Count	.5	1.4	5.3	.7	8.0
		% within Q22	.0%	5.3%	7.1%	22.2%	7.6%
	Total	Count	7	19	70	9	105
		Expected Count	7.0	19.0	70.0	9.0	105.0
		% within Q22	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.956[a]	12	.028
Likelihood Ratio	23.028	12	.027
Linear-by-Linear Association	.809	1	.368
N of Valid Cases	105		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .53.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.089	.030	2.825	.027[c]
		S1-5 Dependent	.074	.026	2.825	.027[c]
		Q22 Dependent	.113	.037	2.825	.027[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.424			.028
Interval by Interval	Pearson's R	.088	.082	.899	.371[c]

Ordinal by Ordinal	Spearman Correlation	.095	.094	.971	.334[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q23

Crosstab

			Q23			
			2	3	4	Total
S1-5	1	Count	2	5	6	13
		Expected Count	2.5	8.0	2.5	13.0
		% within Q23	10.0%	7.7%	30.0%	12.4%
	2	Count	5	13	1	19
		Expected Count	3.6	11.8	3.6	19.0
		% within Q23	25.0%	20.0%	5.0%	18.1%
	3	Count	1	23	11	35
		Expected Count	6.7	21.7	6.7	35.0
		% within Q23	5.0%	35.4%	55.0%	33.3%
	4	Count	9	19	2	30
		Expected Count	5.7	18.6	5.7	30.0
		% within Q23	45.0%	29.2%	10.0%	28.6%
	5	Count	3	5	0	8
		Expected Count	1.5	5.0	1.5	8.0
		% within Q23	15.0%	7.7%	.0%	7.6%
	Total	Count	20	65	20	105
		Expected Count	20.0	65.0	20.0	105.0
		% within Q23	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.796[a]	8	.002
Likelihood Ratio	27.243	8	.001
Linear-by-Linear Association	5.650	1	.017
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is 1.52.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.107	.033	3.180	.001[c]
		S1-5 Dependent	.087	.027	3.180	.001[c]
		Q23 Dependent	.140	.042	3.180	.001[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.430			.002
Interval by Interval	Pearson's R	-.233	.098	-2.433	.017[c]
Ordinal by Ordinal	Spearman Correlation	-.235	.099	-2.457	.016[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q24

Crosstab

	Q24

			1	2	3	4	Total
S1-5	1	Count	0	1	9	3	13
		Expected Count	.5	.9	9.3	2.4	13.0
		% within Q24	.0%	14.3%	12.0%	15.8%	12.4%
	2	Count	0	0	10	9	19
		Expected Count	.7	1.3	13.6	3.4	19.0
		% within Q24	.0%	.0%	13.3%	47.4%	18.1%
	3	Count	0	0	33	2	35
		Expected Count	1.3	2.3	25.0	6.3	35.0
		% within Q24	.0%	.0%	44.0%	10.5%	33.3%
	4	Count	4	6	18	2	30
		Expected Count	1.1	2.0	21.4	5.4	30.0
		% within Q24	100.0%	85.7%	24.0%	10.5%	28.6%
	5	Count	0	0	5	3	8
		Expected Count	.3	.5	5.7	1.4	8.0
		% within Q24	.0%	.0%	6.7%	15.8%	7.6%
	Total	Count	4	7	75	19	105
		Expected Count	4.0	7.0	75.0	19.0	105.0
		% within Q24	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.271[a]	12	.000
Likelihood Ratio	42.081	12	.000
Linear-by-Linear Association	6.773	1	.009
N of Valid Cases	105		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .30.

Directional Measures

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.

Nominal by Nominal	Uncertainty Coefficient	Symmetric	.171	.040	3.962	.000[c]
		S1-5 Dependent	.135	.034	3.962	.000[c]
		Q24 Dependent	.234	.048	3.962	.000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.536			.000
Interval by Interval	Pearson's R	-.255	.091	-2.679	.009[c]
Ordinal by Ordinal	Spearman Correlation	-.280	.105	-2.964	.004[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q25

Crosstab

			Q25			
			2	3	4	Total
S1-5	1	Count	0	7	6	13
		Expected Count	1.0	7.6	4.5	13.0
		% within Q25	.0%	11.5%	16.7%	12.4%
	2	Count	0	13	6	19
		Expected Count	1.4	11.0	6.5	19.0
		% within Q25	.0%	21.3%	16.7%	18.1%
	3	Count	0	22	13	35
		Expected Count	2.7	20.3	12.0	35.0
		% within Q25	.0%	36.1%	36.1%	33.3%
	4	Count	8	14	8	30

		Expected Count	2.3	17.4	10.3	30.0
		% within Q25	100.0%	23.0%	22.2%	28.6%
	5	Count	0	5	3	8
		Expected Count	.6	4.6	2.7	8.0
		% within Q25	.0%	8.2%	8.3%	7.6%
	Total	Count	8	61	36	105
		Expected Count	8.0	61.0	36.0	105.0
		% within Q25	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.417[a]	8	.004
Likelihood Ratio	22.476	8	.004
Linear-by-Linear Association	3.221	1	.073
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .61.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.090	.028	3.030	.004[c]
		S1-5 Dependent	.072	.024	3.030	.004[c]
		Q25 Dependent	.122	.034	3.030	.004[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.419			.004
Interval by Interval	Pearson's R	-.176	.090	-1.814	.073[c]

Ordinal by Ordinal	Spearman Correlation	-.168	.096	-1.727	.087[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q26

Crosstab

			Q26			
			2	3	4	Total
S1-5	1	Count	5	7	1	13
		Expected Count	4.5	6.9	1.6	13.0
		% within Q26	13.9%	12.5%	7.7%	12.4%
	2	Count	9	5	5	19
		Expected Count	6.5	10.1	2.4	19.0
		% within Q26	25.0%	8.9%	38.5%	18.1%
	3	Count	16	17	2	35
		Expected Count	12.0	18.7	4.3	35.0
		% within Q26	44.4%	30.4%	15.4%	33.3%
	4	Count	5	24	1	30
		Expected Count	10.3	16.0	3.7	30.0
		% within Q26	13.9%	42.9%	7.7%	28.6%
	5	Count	1	3	4	8
		Expected Count	2.7	4.3	1.0	8.0
		% within Q26	2.8%	5.4%	30.8%	7.6%
	Total	Count	36	56	13	105
		Expected Count	36.0	56.0	13.0	105.0
		% within Q26	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.893[a]	8	.000
Likelihood Ratio	26.219	8	.001
Linear-by-Linear Association	3.596	1	.058
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .99.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.102	.038	2.619	.001[c]
		S1-5 Dependent	.084	.032	2.619	.001[c]
		Q26 Dependent	.130	.048	2.619	.001[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.465			.000
Interval by Interval	Pearson's R	.186	.102	1.921	.058[c]
Ordinal by Ordinal	Spearman Correlation	.203	.100	2.100	.038[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q27

Crosstab

	Q27

			2	3	4	Total
S1-5	1	Count	2	8	3	13
		Expected Count	3.7	7.8	1.5	13.0
		% within Q27	6.7%	12.7%	25.0%	12.4%
	2	Count	7	10	2	19
		Expected Count	5.4	11.4	2.2	19.0
		% within Q27	23.3%	15.9%	16.7%	18.1%
	3	Count	8	23	4	35
		Expected Count	10.0	21.0	4.0	35.0
		% within Q27	26.7%	36.5%	33.3%	33.3%
	4	Count	12	17	1	30
		Expected Count	8.6	18.0	3.4	30.0
		% within Q27	40.0%	27.0%	8.3%	28.6%
	5	Count	1	5	2	8
		Expected Count	2.3	4.8	.9	8.0
		% within Q27	3.3%	7.9%	16.7%	7.6%
	Total	Count	30	63	12	105
		Expected Count	30.0	63.0	12.0	105.0
		% within Q27	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.739[a]	8	.365
Likelihood Ratio	8.923	8	.349
Linear-by-Linear Association	.683	1	.409
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .91.

Directional Measures

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.

Nominal by Nominal	Uncertainty Coefficient	Symmetric	.035	.022	1.564	.349[c]
		S1-5 Dependent	.029	.018	1.564	.349[c]
		Q27 Dependent	.047	.029	1.564	.349[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.277			.365
Interval by Interval	Pearson's R	-.081	.102	-.825	.411[c]
Ordinal by Ordinal	Spearman Correlation	-.082	.101	-.840	.403[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q28

Crosstab

			Q28			
			2	3	4	Total
S1-5	1	Count	2	11	0	13
		Expected Count	.6	10.8	1.6	13.0
		% within Q28	40.0%	12.6%	.0%	12.4%
	2	Count	0	15	4	19
		Expected Count	.9	15.7	2.4	19.0
		% within Q28	.0%	17.2%	30.8%	18.1%
	3	Count	0	31	4	35
		Expected Count	1.7	29.0	4.3	35.0
		% within Q28	.0%	35.6%	30.8%	33.3%
	4	Count	3	27	0	30

		Expected Count	1.4	24.9	3.7	30.0
		% within Q28	60.0%	31.0%	.0%	28.6%
	5	Count	0	3	5	8
		Expected Count	.4	6.6	1.0	8.0
		% within Q28	.0%	3.4%	38.5%	7.6%
	Total	Count	5	87	13	105
		Expected Count	5.0	87.0	13.0	105.0
		% within Q28	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.845[a]	8	.000
Likelihood Ratio	31.795	8	.000
Linear-by-Linear Association	2.156	1	.142
N of Valid Cases	105		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .38.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.148	.035	3.696	.000[c]
		S1-5 Dependent	.102	.027	3.696	.000[c]
		Q28 Dependent	.271	.053	3.696	.000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.488			.000
Interval by Interval	Pearson's R	.144	.114	1.477	.143[c]

Ordinal by Ordinal	Spearman Correlation	.093	.116	.950	.344[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q29

Crosstab

			Q29			
			2	3	4	Total
S1-5	1	Count	0	7	6	13
		Expected Count	1.4	7.6	4.1	13.0
		% within Q29	.0%	11.5%	18.2%	12.4%
	2	Count	4	6	9	19
		Expected Count	2.0	11.0	6.0	19.0
		% within Q29	36.4%	9.8%	27.3%	18.1%
	3	Count	5	22	8	35
		Expected Count	3.7	20.3	11.0	35.0
		% within Q29	45.5%	36.1%	24.2%	33.3%
	4	Count	0	21	9	30
		Expected Count	3.1	17.4	9.4	30.0
		% within Q29	.0%	34.4%	27.3%	28.6%
	5	Count	2	5	1	8
		Expected Count	.8	4.6	2.5	8.0
		% within Q29	18.2%	8.2%	3.0%	7.6%
	Total	Count	11	61	33	105
		Expected Count	11.0	61.0	33.0	105.0
		% within Q29	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.047[a]	8	.042
Likelihood Ratio	20.031	8	.010
Linear-by-Linear Association	2.069	1	.150
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .84.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.079	.024	3.131	.010[c]
		S1-5 Dependent	.064	.020	3.131	.010[c]
		Q29 Dependent	.104	.031	3.131	.010[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.364			.042
Interval by Interval	Pearson's R	-.141	.094	-1.446	.151[c]
Ordinal by Ordinal	Spearman Correlation	-.130	.098	-1.335	.185[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q30

Crosstab

	Q30

			2	3	4	Total
S1-5	1	Count	0	9	4	13
		Expected Count	1.5	7.3	4.2	13.0
		% within Q30	.0%	15.3%	11.8%	12.4%
	2	Count	1	6	12	19
		Expected Count	2.2	10.7	6.2	19.0
		% within Q30	8.3%	10.2%	35.3%	18.1%
	3	Count	11	19	5	35
		Expected Count	4.0	19.7	11.3	35.0
		% within Q30	91.7%	32.2%	14.7%	33.3%
	4	Count	0	21	9	30
		Expected Count	3.4	16.9	9.7	30.0
		% within Q30	.0%	35.6%	26.5%	28.6%
	5	Count	0	4	4	8
		Expected Count	.9	4.5	2.6	8.0
		% within Q30	.0%	6.8%	11.8%	7.6%
	Total	Count	12	59	34	105
		Expected Count	12.0	59.0	34.0	105.0
		% within Q30	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.175[a]	8	.000
Likelihood Ratio	34.074	8	.000
Linear-by-Linear Association	.092	1	.761
N of Valid Cases	105		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .91.

Directional Measures

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.

Nominal by Nominal	Uncertainty Coefficient	Symmetric	.134	.036	3.625	.000[c]
		S1-5 Dependent	.109	.030	3.625	.000[c]
		Q30 Dependent	.173	.044	3.625	.000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.484			.000
Interval by Interval	Pearson's R	-.030	.083	-.302	.763[c]
Ordinal by Ordinal	Spearman Correlation	-.029	.095	-.294	.769[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q31

Crosstab

			Q31			
			2	3	4	Total
S1-5	1	Count	0	7	6	13
		Expected Count	.1	6.1	6.8	13.0
		% within Q31	.0%	14.3%	10.9%	12.4%
	2	Count	0	7	12	19
		Expected Count	.2	8.9	10.0	19.0
		% within Q31	.0%	14.3%	21.8%	18.1%
	3	Count	1	20	14	35
		Expected Count	.3	16.3	18.3	35.0
		% within Q31	100.0%	40.8%	25.5%	33.3%
	4	Count	0	11	19	30

		Expected Count	.3	14.0	15.7	30.0
		% within Q31	.0%	22.4%	34.5%	28.6%
	5	Count	0	4	4	8
		Expected Count	.1	3.7	4.2	8.0
		% within Q31	.0%	8.2%	7.3%	7.6%
	Total	Count	1	49	55	105
		Expected Count	1.0	49.0	55.0	105.0
		% within Q31	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.259[a]	8	.618
Likelihood Ratio	6.502	8	.591
Linear-by-Linear Association	.171	1	.679
N of Valid Cases	105		

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .08.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.028	.020	1.406	.591[c]
		S1-5 Dependent	.021	.015	1.406	.591[c]
		Q31 Dependent	.042	.029	1.406	.591[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.237			.618
Interval by Interval	Pearson's R	.041	.094	.412	.681[c]

Ordinal by Ordinal	Spearman Correlation	.050	.097	.509	.612[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

S1-5 * Q32

Crosstab

			Q32				
			1	2	3	4	Total
S1-5	1	Count	0	0	13	0	13
		Expected Count	.4	1.0	8.0	3.6	13.0
		% within Q32	.0%	.0%	20.0%	.0%	12.4%
	2	Count	0	0	5	14	19
		Expected Count	.5	1.4	11.8	5.2	19.0
		% within Q32	.0%	.0%	7.7%	48.3%	18.1%
	3	Count	3	7	24	1	35
		Expected Count	1.0	2.7	21.7	9.7	35.0
		% within Q32	100.0%	87.5%	36.9%	3.4%	33.3%
	4	Count	0	1	18	11	30
		Expected Count	.9	2.3	18.6	8.3	30.0
		% within Q32	.0%	12.5%	27.7%	37.9%	28.6%
	5	Count	0	0	5	3	8
		Expected Count	.2	.6	5.0	2.2	8.0
		% within Q32	.0%	.0%	7.7%	10.3%	7.6%
	Total	Count	3	8	65	29	105
		Expected Count	3.0	8.0	65.0	29.0	105.0
		% within Q32	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	51.147[a]	12	.000
Likelihood Ratio	57.252	12	.000
Linear-by-Linear Association	.058	1	.810
N of Valid Cases	105		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .23.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Uncertainty Coefficient	Symmetric	.224	.039	5.250	.000[c]
		S1-5 Dependent	.183	.035	5.250	.000[c]
		Q32 Dependent	.287	.047	5.250	.000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Likelihood ratio chi-square probability.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.572			.000
Interval by Interval	Pearson's R	.024	.069	.239	.812[c]
Ordinal by Ordinal	Spearman Correlation	.028	.094	.288	.774[c]
N of Valid Cases		105			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix 14. Contingency table statistical analysis of most important factors and position in organisation with Likert scale scores

Human Factor

Chi-square (Observed value)	0,008
Chi-square (Critical value)	9,488
DF	4
p-value	1,000
alpha	0,05

Table 16.1.Test of independence between the rows and the columns (Chi-square) of Human factor

List of combines:		Frequency	Proportion
Project Management	Low	0,00%	0,00%
	Middle	8,93%	4,76%
	High	91,07%	48,57%
Business management	Low	0,00%	0,00%
	Middle	8,93%	4,76%
	High	58,93%	31,43%
Other	Low	0,00%	0,00%
	Middle	1,79%	0,95%
	High	17,86%	9,52%

Table 16.2.Test of frequencies of Human factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,000	0,002	0,000	0,003
Business management	0,000	0,005	0,001	0,005
Other	0,000	0,000	0,000	0,000
Total	0,000	0,007	0,001	0,008
Significance by cell:	Low	Middle	High	
Project Management	<	<	>	
Business management	<	>	<	
Other	>	<	>	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,000	0,001	0,000	0,001
Business management	0,000	0,002	0,000	0,003
Other	0,000	0,000	0,000	0,000
Total	0,000	0,004	0,000	0,004
Observed frequencies:	Low	Middle	High	Total
Project Management	0,000	0,089	0,911	1,000
Business management	0,000	0,089	0,589	0,679
Other	0,000	0,018	0,179	0,196
Total	0,000	0,196	1,679	1,875
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,000	0,105	0,895	1
Business management	0,000	0,071	0,607	0,678572

Other	0,000	0,021	0,176	0,196429
Total	0,0000003	0,196429	1,678571	1,875
Proportions / Row:	Low	Middle	High	Total
Project Management	0,000	0,089	0,911	1
Business management	0,000	0,132	0,868	1
Other	0,000	0,091	0,909	1
Total	0,000	0,105	0,895	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,333	0,455	0,543	0,533
Business management	0,333	0,455	0,351	0,362
Other	0,333	0,091	0,106	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,000	0,048	0,486	0,533
Business management	0,000	0,048	0,314	0,362
Other	0,000	0,010	0,095	0,105
Total	0,000	0,105	0,895	1,000

Table 16.3. Summary statistics of Human factor in relation with position in organisation.

Organisational Quality

Chi-square (Observed value)	0,158
Chi-square (Critical value)	9,488
DF	4
p-value	0,997
Alpha	0,05

Table 16.4.Test of independence between the rows and the columns (Chi-square) of organisational quality factor.

List of combines:		Frequency	Proportion
Project Management	Low	0,0179	0,010
	Middle	0,5	0,267
	High	0,482143	0,257
Business management	Low	0,0893	0,048
	Middle	0,321429	0,171
	High	0,267857	0,143
Other	Low	1E-09	0,000
	Middle	0,053571	0,029
	High	0,142857	0,076

Table 16.5. Test of frequencies of organisational quality factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,027	0,002	0,000	0,029
Business management	0,066	0,000	0,009	0,075
Other	0,011	0,016	0,026	0,053
Total	0,104	0,018	0,036	0,158
Significance by cell:	Low	Middle	High	
Project Management	<	>	>	
Business management	>	>	<	
Other	<	<	>	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,014	0,001	0,000	0,016
Business management	0,035	0,000	0,005	0,040
Other	0,006	0,008	0,014	0,028
Total	0,055	0,010	0,019	0,084
Observed frequencies:	Low	Middle	High	Total
Project Management	0,0179	0,5	0,482143	1,000043
Business management	0,0893	0,321429	0,267857	0,678586
Other	0,000000001	0,053571	0,142857	0,196429
Total	0,107200001	0,875	0,892857	1,875057
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,057	0,467	0,476	1,000043
Business management	0,039	0,317	0,323	0,678586
Other	0,011	0,092	0,094	0,196429
Total	0,107200001	0,875	0,892857	1,875057
Proportions / Row:	Low	Middle	High	Total
Project Management	0,018	0,500	0,482	1
Business management	0,132	0,474	0,395	1
Other	0,000	0,273	0,727	1
Total	0,057	0,467	0,476	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,167	0,571	0,540	0,533
Business management	0,833	0,367	0,300	0,362
Other	0,000	0,061	0,160	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,010	0,267	0,257	0,533
Business management	0,048	0,171	0,143	0,362
Other	0,000	0,029	0,076	0,105
Total	0,057	0,467	0,476	1,000

Table 16.6.Summary statistics of organisational quality factor in relation with position in organisation.

Information technology support

Chi-square (Observed value)	0,165
Chi-square (Critical value)	9,488
DF	4
p-value	0,997
alpha	0,05

Table 16.7.Test of independence between the rows and the columns (Chi-square) Information technology support factor

List of combines:		Frequency	Proportion
Project Management	Low	0,0714	0,038
	Middle	0,678571	0,362
	High	0,25	0,133
Business management	Low	0,1607	0,086
	Middle	0,428571	0,229
	High	0,089286	0,048
Other	Low	1E-07	0,000
	Middle	0,125	0,067
	High	0,071429	0,038

Table 16.8.Test of frequencies of Information technology support factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,022	0,001	0,004	0,027
Business management	0,070	0,001	0,024	0,094
Other	0,024	0,000	0,019	0,043
Total	0,117	0,002	0,047	0,165
Significance by cell:	Low	Middle	High	
Project Management	<	**>**	>	
Business management	>	**<**	<	
Other	<	**<**	>	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,012	0,000	0,002	0,015
Business management	0,037	0,000	0,013	0,050
Other	0,013	0,000	0,010	0,023
Total	0,062	0,001	0,025	0,088
Observed frequencies:	Low	Middle	High	Total
Project Management	0,0714	0,678571	0,25	0,999971
Business management	0,1607	0,428571	0,089286	0,678557
Other	0,0000001	0,125	0,071429	0,196429
Total	0,2321001	1,232143	0,410714	1,874957
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,124	0,657	0,219	0,999971
Business management	0,084	0,446	0,149	0,678557
Other	0,024	0,129	0,043	0,196429
Total	0,2321001	1,232143	0,410714	1,874957

Proportions / Row:	Low	Middle	High	Total
Project Management	0,071	0,679	0,250	1
Business management	0,237	0,632	0,132	1
Other	0,000	0,636	0,364	1
Total	0,124	0,657	0,219	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,308	0,551	0,609	0,533
Business management	0,692	0,348	0,217	0,362
Other	0,000	0,101	0,174	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,038	0,362	0,133	0,533
Business management	0,086	0,229	0,048	0,362
Other	0,000	0,067	0,038	0,105
Total	0,124	0,657	0,219	1,000

Table 16.9. Summary statistics Information technology support factor in relation with position in organisation.

Organisational communication

Chi-square (Observed value)	0,053
Chi-square (Critical value)	9,488
DF	4
p-value	1,000
alpha	0,05

Table 16.10.Test of independence between the rows and the columns (Chi-square) of organisational communication factor

List of combines:		Frequency	Proportion
Project Management	Low	0	0,000
	Middle	0,035714	0,019
	High	0,964286	0,514
Business management	Low	0	0,000
	Middle	0,089286	0,048
	High	0,589286	0,314
Other	Low	0	0,000
	Middle	0,017857	0,010
	High	0,178571	0,095

Table 16.11.Test of frequencies of organisational communication factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,000	0,022	0,002	0,023
Business management	0,000	0,027	0,002	0,030
Other	0,000	0,001	0,000	0,001
Total	0,000	0,049	0,004	0,053
Significance by cell:	Low	Middle	High	
Project Management	<	<	**>**	
Business management	<	>	**<**	
Other	>	>	**<**	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,000	0,011	0,001	0,012
Business management	0,000	0,015	0,001	0,016
Other	0,000	0,000	0,000	0,000
Total	0,000	0,026	0,002	0,029
Observed frequencies:	Low	Middle	High	Total
Project Management	1E-10	0,035714	0,964286	1
Business management	1E-10	0,089286	0,589286	0,678571
Other	1E-10	0,017857	0,178571	0,196429
Total	3E-10	0,142857	1,732143	1,875
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,000	0,076	0,924	1
Business management	0,000	0,052	0,627	0,678571
Other	0,000	0,015	0,181	0,196429
Total	3E-10	0,142857	1,732143	1,875
Proportions / Row:	Low	Middle	High	Total
Project Management	0,000	0,036	0,964	1
Business management	0,000	0,132	0,868	1
Other	0,000	0,091	0,909	1
Total	0,000	0,076	0,924	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,333	0,250	0,557	0,533
Business management	0,333	0,625	0,340	0,362
Other	0,333	0,125	0,103	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,000	0,019	0,514	0,533
Business management	0,000	0,048	0,314	0,362
Other	0,000	0,010	0,095	0,105
Total	0,000	0,076	0,924	1,000

Table 16.12. Summary statistics of organisational communication factor in relation with position in organisation.

Project management strategy

Chi-square (Observed value)	0,195
Chi-square (Critical value)	9,488
DF	4
p-value	0,996
alpha	0,05

Table 16.13.Test of independence between the rows and the columns (Chi-square) of project management strategy factor

List of combines:		Frequency	Proportion
Project Management	Low	0	0,000
	Middle	0,053571	0,029
	High	0,946429	0,505
Business management	Low	0	0,000
	Middle	0,178571	0,095
	High	0,5	0,267
Other	Low	0	0,000
	Middle	0	0,000
	High	0,196429	0,105

Table 16.13.Test of frequencies of project management strategy factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,000	0,040	0,006	0,045
Business management	0,000	0,106	0,015	0,121
Other	0,000	0,024	0,003	0,028
Total	0,000	0,171	0,024	0,195
Significance by cell:	Low	Middle	High	
Project Management	<	<	**>**	
Business management	<	>	**<**	
Other	>	<	**>**	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,000	0,021	0,003	0,024
Business management	0,000	0,057	0,008	0,065
Other	0,000	0,013	0,002	0,015
Total	0,000	0,091	0,013	0,104
Observed frequencies:	Low	Middle	High	Total
Project Management	0	0,053571	0,946429	1
Business management	0	0,178571	0,5	0,678571
Other	0	0	0,196429	0,196429
Total	0	0,232143	1,642857	1,875
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,000	0,124	0,876	1
Business management	0,000	0,084	0,595	0,678571
Other	0,000	0,024	0,172	0,196429
Total	3E-10	0,232143	1,642857	1,875
Proportions / Row:	Low	Middle	High	Total
Project Management	0,000	0,054	0,946	1

Business management	0,000	0,263	0,737	1
Other	0,000	0,000	1,000	1
Total	0,000	0,124	0,876	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,333	0,231	0,576	0,533
Business management	0,333	0,769	0,304	0,362
Other	0,333	0,000	0,120	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,000	0,029	0,505	0,533
Business management	0,000	0,095	0,267	0,362
Other	0,000	0,000	0,105	0,105
Total	0,000	0,124	0,876	1,000

Table 16.14. Summary statistics of project management strategy factor in relation with position in organisation.

Organisational project management maturity

Chi-square (Observed value)	0,381
Chi-square (Critical value)	9,488
DF	4
p-value	0,984
alpha	0,05

Table 16.15.Test of independence between the rows and the columns (Chi-square) of organisational project management maturity factor

List of combines:		**Frequency**	**Proportion**
Project Management	Low	0,000	0,000
	Middle	0,464285714	0,248
	High	0,535714286	0,286
Business management	Low	0,1964	0,105
	Middle	0,214285714	0,114
	High	0,267857143	0,143
Other	Low	0,0179	0,010
	Middle	0,035714286	0,019
	High	0,142857143	0,076

Table 16.16.Test of frequencies of organisational project management maturity factor in relation with position in organisation.

Chi-square by cell:	Low	Middle	High	Total
Project Management	0,114	0,018	0,002	0,134
Business management	0,182	0,008	0,016	0,206
Other	0,001	0,020	0,019	0,041

Total	0,297	0,046	0,037	0,381
Significance by cell:	Low	Middle	High	
Project Management	<	>	>	
Business management	>	<	<	
Other	<	<	>	
Inertia by cell:	Low	Middle	High	Total
Project Management	0,061	0,010	0,001	0,072
Business management	0,097	0,004	0,009	0,110
Other	0,000	0,011	0,010	0,022
Total	0,159	0,025	0,020	0,203
Observed frequencies:	Low	Middle	High	Total
Project Management	0,000	0,464285714	0,535714286	1
Business management	0,1964	0,214285714	0,267857143	0,678543
Other	0,0179	0,035714286	0,142857143	0,196471
Total	0,2143	0,714285714	0,946428571	1,875014
Theoretical frequencies:	Low	Middle	High	Total
Project Management	0,114	0,381	0,505	1
Business management	0,078	0,258	0,342	0,678543
Other	0,022	0,075	0,099	0,196471
Total	0,2143	0,714285714	0,946428571	1,875014
Proportions / Row:	Low	Middle	High	Total
Project Management	0,000	0,464	0,536	1
Business management	0,289	0,316	0,395	1
Other	0,091	0,182	0,727	1
Total	0,114	0,381	0,505	1
Proportions / Column:	Low	Middle	High	Total
Project Management	0,000	0,650	0,566	0,533
Business management	0,916	0,300	0,283	0,362
Other	0,084	0,050	0,151	0,105
Total	1	1	1	1
Proportions / Total:	Low	Middle	High	Total
Project Management	0,000	0,248	0,286	0,533
Business management	0,105	0,114	0,143	0,362
Other	0,010	0,019	0,076	0,105
Total	0,114	0,381	0,505	1,000

Table 16.17. Summary statistics of organisational project management maturity factor in relation with position in organisation.

Appendix 15. Project Management Context" stages (PMC1- PMC5) influence factors analysis

#	Influencing factors	PMC1 %	PMC2 %	PMC3 %	PMC4 %	PMC5 %
F1	Projects Prioritisation	52.38	63.81	80.95	65.71	43.81
F2	Upper management consensus and commitment	81.90	69.52	86.67	81.90	43.81
F3	Organisational culture	79.05	80.95	56.19	75.24	64.76
F4	Organisational politics	35.24	53.33	45.71	49.52	22.86
F5	Organisational knowledge management	25.71	36.19	26.67	47.62	30.48
F6	Human Factor	40.00	67.62	61.90	60.00	54.29
F7	Organisational quality	15.24	39.05	42.86	19.05	34.29
F8	Organisational bureaucracy	30.48	38.10	43.81	49.52	33.33
F9	Organisational complexity	36.19	56.19	33.33	37.14	25.71
F10	Operational processes support	0.00	40.00	30.48	40.95	30.48
F11	External environment	28.57	28.57	21.90	29.52	28.57
F12	Ethical factors	10.48	7.62	6.67	8.57	11.43
F13	Organisational Training	0.95	6.67	12.38	14.29	8.57
F14	Organisational communication	40.00	35.24	40.95	59.05	35.24
F15	Project team members work load	25.71	35.24	13.33	30.48	35.24
F16	Dependences between strategic or other projects	19.05	18.10	33.33	22.86	21.90
F17	Project management process	30.48	16.19	24.76	23.81	44.76
F18	Support from Information Technology	5.71	7.62	15.24	20.00	9.52
F19	Stakeholders	46.67	41.90	40.95	40.95	54.29
F20	Project time	23.81	18.10	10.48	29.52	37.14
F21	Project cost	27.62	22.86	11.43	29.52	34.29
F22	Project's delivered product quality	9.52	18.10	17.14	19.05	38.10
F23	Project complexity	14.29	23.81	22.86	31.43	40.95
F24	Project Earned Value management	13.33	19.05	7.62	15.24	22.86
F25	Project management flexibility	27.62	21.90	23.81	20.95	42.86
F26	Risk management	31.43	43.81	28.57	44.76	31.43
F27	Project Management Office	18.10	22.86	36.19	24.76	30.48
F28	Project management strategy	33.33	21.90	41.90	52.38	23.81
F29	Organisational maturity on project management	28.57	41.90	39.05	40.95	16.19

Table 15.1. Project Management Context stages influence factors percentages

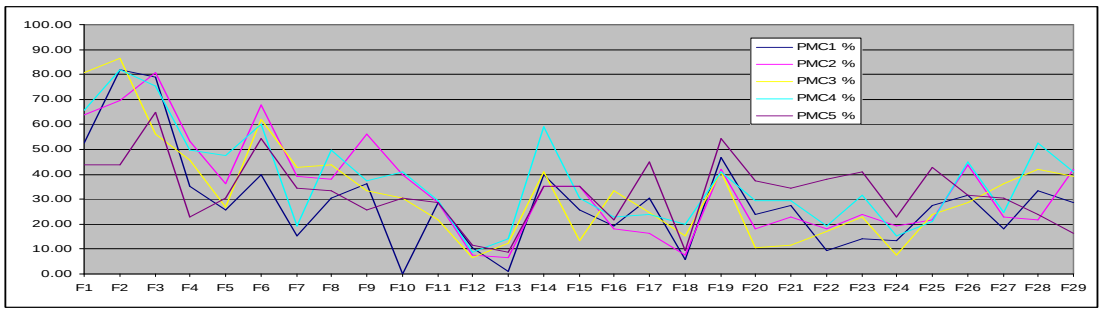

Figure 15.1 Graphical presentation of influence factors (F1-F29) in each of the "Project Management Context" stages (PMC1 – PMC5)

#	Influencing factors	PMC1 %

F2	Upper management consensus and commitment	81.90
F3	Organisational culture	79.05
F1	Projects Prioritisation	52.38
F19	Stakeholders	46.67
F6	Human Factor	40.00
F14	Organisational communication	40.00
F9	Organisational complexity	36.19
F4	Organisational politics	35.24
F28	Project management strategy	33.33
F26	Risk management	31.43
F8	Organisational bureaucracy	30.48
F17	Project management process	30.48
F11	External environment	28.57
F29	Organisational maturity on project management	28.57
F21	Project cost	27.62
F25	Project management flexibility	27.62
F5	Organisational knowledge management	25.71
F15	Project team members work load	25.71
F20	Project time	23.81
F16	Dependences between strategic or other projects	19.05
F27	Project Management Office	18.10
F7	Organisational quality	15.24
F23	Project complexity	14.29
F24	Project Earned Value management	13.33
F12	Ethical factors	10.48
F22	Project's delivered product quality	9.52
F18	Support from Information Technology	5.71
F13	Organisational Training	0.95
F10	Operational processes support	0.00

Table 15.2. Sorted list from the most important influence factor for PMC1

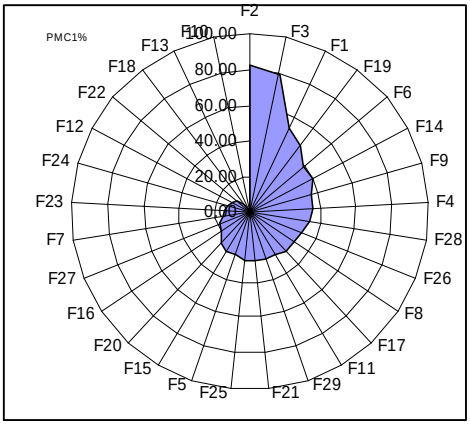

Figure 15.2. Influence factors affection on PMC1 "Organisational Strategy"

#	**Influencing factors**	**PMC2 %**
F3	Organisational culture	80.95

F2	Upper management consensus and commitment	69.52
F6	Human Factor	67.62
F1	Projects Prioritisation	63.81
F9	Organisational complexity	56.19
F4	Organisational politics	53.33
F26	Risk management	43.81
F19	Stakeholders	41.90
F29	Organisational maturity on project management	41.90
F10	Operational processes support	40.00
F7	Organisational quality	39.05
F8	Organisational bureaucracy	38.10
F5	Organisational knowledge management	36.19
F14	Organisational communication	35.24
F15	Project team members work load	35.24
F11	External environment	28.57
F23	Project complexity	23.81
F21	Project cost	22.86
F27	Project Management Office	22.86
F25	Project management flexibility	21.90
F28	Project management strategy	21.90
F24	Project Earned Value management	19.05
F16	Dependences between strategic or other projects	18.10
F20	Project time	18.10
F22	Project's delivered product quality	18.10
F17	Project management process	16.19
F12	Ethical factors	7.62
F18	Support from Information Technology	7.62
F13	Organisational Training	6.67

Table 15.3. Sorted list from the most important influence factor for PMC2

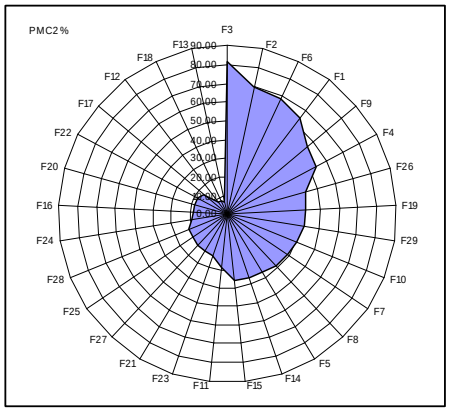

Figure 15.3. Influence factors affection on PMC2 "Operating plans"

#	**Influencing factors**	**PMC3 %**
F2	Upper management consensus and commitment	86.67

F1	Projects Prioritisation	80.95
F6	Human Factor	61.90
F3	Organisational culture	56.19
F4	Organisational politics	45.71
F8	Organisational bureaucracy	43.81
F7	Organisational quality	42.86
F28	Project management strategy	41.90
F14	Organisational communication	40.95
F19	Stakeholders	40.95
F29	Organisational maturity on project management	39.05
F27	Project Management Office	36.19
F9	Organisational complexity	33.33
F16	Dependences between strategic or other projects	33.33
F10	Operational processes support	30.48
F26	Risk management	28.57
F5	Organisational knowledge management	26.67
F17	Project management process	24.76
F25	Project management flexibility	23.81
F23	Project complexity	22.86
F11	External environment	21.90
F22	Project's delivered product quality	17.14
F18	Support from Information Technology	15.24
F15	Project team members work load	13.33
F13	Organisational Training	12.38
F21	Project cost	11.43
F20	Project time	10.48
F24	Project Earned Value management	7.62
F12	Ethical factors	6.67

Table 15.4. Sorted list from the most important influence factor for PMC3

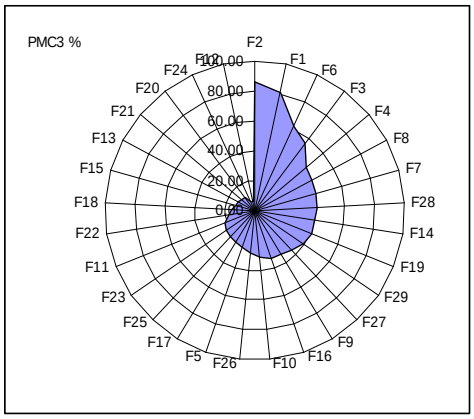

Figure 15.4. Influence factors affection on PMC3 "Portfolio management"

#	**Influencing factors**	**PMC4 %**
F2	Upper management consensus and commitment	81.90
F3	Organisational culture	75.24

F1	Projects Prioritisation	65.71
F6	Human Factor	60.00
F14	Organisational communication	59.05
F28	Project management strategy	52.38
F4	Organisational politics	49.52
F8	Organisational bureaucracy	49.52
F5	Organisational knowledge management	47.62
F26	Risk management	44.76
F10	Operational processes support	40.95
F19	Stakeholders	40.95
F29	Organisational maturity on project management	40.95
F9	Organisational complexity	37.14
F23	Project complexity	31.43
F15	Project team members work load	30.48
F11	External environment	29.52
F20	Project time	29.52
F21	Project cost	29.52
F27	Project Management Office	24.76
F17	Project management process	23.81
F16	Dependences between strategic or other projects	22.86
F25	Project management flexibility	20.95
F18	Support from Information Technology	20.00
F7	Organisational quality	19.05
F22	Project's delivered product quality	19.05
F24	Project Earned Value management	15.24
F13	Organisational Training	14.29
F12	Ethical factors	8.57

Table 15.5. Sorted list from the most important influence factor for PMC4

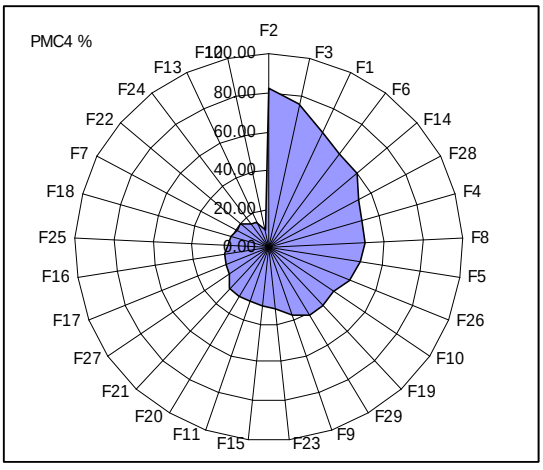

Figure 15.5. Influence factors affection on PMC4 "Program management"

#	**Influencing factors**	**PMC5 %**
F3	Organisational culture	64.76
F6	Human Factor	54.29

F19	Stakeholders	54.29
F17	Project management process	44.76
F1	Projects Prioritisation	43.81
F2	Upper management consensus and commitment	43.81
F25	Project management flexibility	42.86
F23	Project complexity	40.95
F22	Project's delivered product quality	38.10
F20	Project time	37.14
F14	Organisational communication	35.24
F15	Project team members work load	35.24
F7	Organisational quality	34.29
F21	Project cost	34.29
F8	Organisational bureaucracy	33.33
F26	Risk management	31.43
F5	Organisational knowledge management	30.48
F10	Operational processes support	30.48
F27	Project Management Office	30.48
F11	External environment	28.57
F9	Organisational complexity	25.71
F28	Project management strategy	23.81
F4	Organisational politics	22.86
F24	Project Earned Value management	22.86
F16	Dependences between strategic or other projects	21.90
F29	Organisational maturity on project management	16.19
F12	Ethical factors	11.43
F18	Support from Information Technology	9.52
F13	Organisational Training	8.57

Table 15.6. Sorted list from the most important influence factor for PMC5

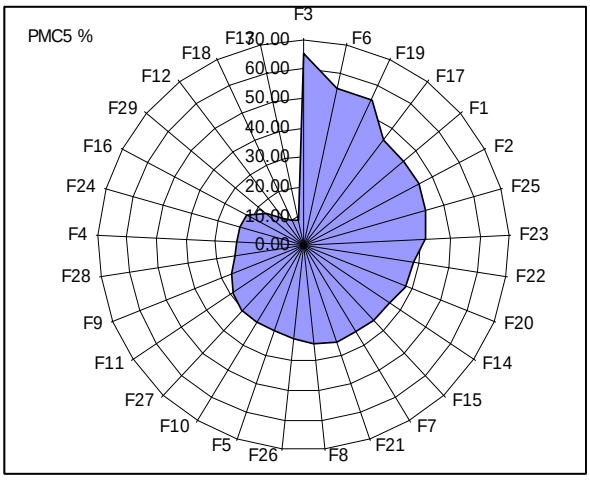

Figure 15.6 Influence factors affection on PMC4 "Project management"

DOCTOR OF BUSINESS ADMINISTRATION

The process and the Key Decision Factors (KDF) of strategic projects implementation route selection

Document five

A report on a piece of structured research

George A. Vassilopoulos

"Document 5 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

November 2010

Abstract

This thesis has the main objectives of identifying the route selection process, used for choosing a method of strategic projects' implementation, used in practice and assessing the relevant Key Decision Factors (KDF) in that decision making process. The study is based on conclusions from previous research documents and the latest findings from literature review. Past literature relied on neoclassical normative project management theory to provide a set of guiding principles, and focused on proximity to specific implementation directions. In modern literature, however, to the topic has been viewed through the prism of a different paradigm. Moreover, the qualitative research chosen in this study adopted a realist approach, attempting to understand the implementation routes phenomenon. This methodology comprised semi-structured interviews of participants, observation of three Greek organisations in the service sector, and collection of documents. Subsequently, data analysis called for results from qualitative research related to, and triangulated with, findings of literature review. As a result, a list of Key Decision Factors and the route selection framework was developed. Managers may have the intention to act rationally and systematically when choosing a method of project implementation, but they mostly cannot achieve this because of the slightly chaotic (unpredicted) nature of organisations and business life. The findings revealed the use of the hybrid-mutant route as the flexible solution for the implementation of strategic projects in reflection to emergent strategy and influences from various factors and phenomena. In conclusion, the research contributes to the knowledge of organisational innovation in strategic projects implementation. The literature on project management implementation is extended as a result of this study.

Table of Contents

Tables

The numbering system used in this thesis for tables includes the Chapter number followed by the sequential number of the table that appears in that Chapter. Thus a table numbered 3.2 is the second table found in Chapter 3 of this thesis.

Figures

The numbering system used in this thesis for figures includes the Chapter number followed by the sequential number of the figure that appears in that Chapter. Thus, a figure numbered 1.4 is the fourth figure found in Chapter 1 of this thesis.

Acknowledgements

I am fortunate to have many people to thank for their involvement in my DBA study. The diverse means through which this help manifested were from assistance and support, to advice and shared experiences. It is with this in mind that I take the opportunity of acknowledging the following people, either personally, or through their organisation or department.

First I thank my supervisors and mentors, Emeritus Professors Colin Fisher, and Dimitrios Tseles while with the same heaviness I want to thank Diane White, for their generous invaluable advice and positive direction throughout my research. They accepted the challenge of my completion date, formed a development strategy for me and kept my work directed to that goal. Furthermore, I must mention that the workshops organised, were of enormous value to my studies. I found them particularly useful in clarifying the 'big picture' within which my studies resided.

In addition, I would like to thank all those professors and teaching facilitators of the DBA workshops at Nottingham Trent University whom I approached were generous with their time and assistance, being prepared to offer help and advice when I lacked the knowledge or experience and I thank them all for their support.

Finally, I acknowledge the business and project managers who participated in interviews and survey and took the time to discuss their experiences with me and helped in completing the qualitative and quantitative research part of my DBA study thus enabling me to reach my conclusions.

Acronyms and abbreviations

BS	Business Strategy
CPM	Critical Path Method
KDC	Key Decision Criteria
KDF	Key Decision Factors
OIF	Organisational Influence Factors
PM	Project Management
PM	Project Manager
PPM	Project Portfolio Management
PMO	Project Management Office
PMP	Project Management Process
PMC	Project Management Context
SIM	Strategy Implementation Model

Chapter 1 Introduction

Strategy implementation is a concern of all companies that want to acquire generic and competitive advantages, to improve their corporate image, and their profitability. In today's increasingly turbulent environment strategy implementation perceived as the way of organisational survival. Mintzberg et al. (1998) argued that the study of strategy includes the actions taken, the content and the processes where actions are decided and implemented. Terms such as "organisational strategy," "project management context" and "influence factors" imply many discrete events and behaviors. "The cornerstone of building a capable organisation as is the use of the appropriate levers of implementation" (Crittenden 2008). In addition, as we move through the 21st century, the rate of strategic change will undoubtedly increase. This study will examine the project management implementation framework behind the rational and normative theoretical approach so that we can define the current trends. This research is intended to create a different view of *traditional* project management and therefore merits greater research. The researcher proposes a new approach to strategic projects' "*implementation route selection.*" The researcher agrees with Vitek (2008) and Somerville (1946) that practice constructs and supports theory so that it can be implemented and improved upon. A natural consequence is the creation of a new theory based on research and considerations.

What's new in this study?

Previous research (Docs 1- 4) examined the links between strategy and project management, and their hybrid project implementation routes used in practice. In addition, their relevant influence factors were identified and assessed. This study stands on those results. The focus is based on the assumption that the research direction can be extrapolated from current literature and research. In addition, the implementation route will be investigated. This intension is based on the assumption that *Key Decision Factors* influence managers' route-choices before starting project implementation. Those factors will be validated by qualitative analysis. Finally, the route selection process found will be presented while the SIM model (developed in Doc 4) will be updated. This topic, "*The process and the Key Decision Factors of strategic projects implementation route selection,*" has not been the focus of an in-depth explanation and analysis. This study rectifies this deficiency, especially concerning the selection of *implementation routes*.

1.1 Chapter overview

This chapter explains why the study is important and provides a foundation for the structure of this research. It also provides an overview of the thesis, explaining the logical structure and

layout used to move from the literature review, to the methodology, data analysis and findings and then towards the conclusions of this study. This chapter will describe:

- research focus
- research issues
- study aims and objectives
- research questions
- research justification
- conceptual framework

1.2 Research focus

The project management revolution

To go back in history, modern exploration and creation of theory in project management started about 60 years ago. From the middle of the 20th century, a lot of studies of business structures and project management were carried out, (Kerzner 2001, Daft 1997).

The processes of project management have significantly advanced since then, including improvements in organisational structure, management skills and culture systems. As a result, project managers increased their knowledge and understanding of how to achieve results beneficial to their organisations (Grundy 2000) and have influenced the organisational framework (Kwak et al. 2009). As a result, as a result of this empirical study, new innovative theory, trends, and challenges may have important implications for the future of project management.

Project management and strategic projects complexity

McElroy (1996) stated that project management was adopted as a simple solution. This means that project management process was not appropriately used or might have been misused. Indeed, is one of the most commonly cited reasons for the failure of business projects. The simple rational use of project management process cannot guarantee the success of a complex strategic project. On the other hand, business projects involve many elements, necessitating *flexibility* in their implementation. Looking at it from a different angle, Kerzner (2001, 2003) noted that strategic projects are becoming increasingly complex and run various risks. In addition, many types of business projects implement an organisation strategy.

Previous research documents

Previous research documents identifies and investigated the links and the influencing factors between Business Strategy (BS) and Project Management Context (PMC). The two elements, however, were found to be linked (and reflected) (Milosevic et al. 2006). They had the same influencing factors and affected the main organisational implementation context accordingly (Morris et al. 2004). The researcher agrees with Grundy's (1997) argument that project management in strategy implementation needs to embrace more complex, independent and fluid *factors* to be effective. Figure 1.1 shows this relationship, and that the implementation of strategic projects links the two elements through the proposed Strategy Implementation Model (SIM). BS and PMC elements overlapped in their influence factors during the implementation of strategic projects.

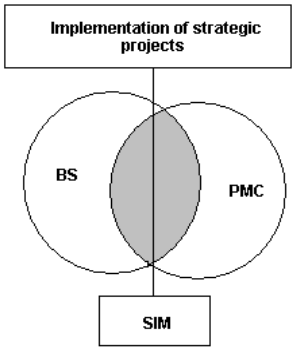

Figure 1.1 The relationship of Business Strategy (BS) and *project management* (PMC) elements during implementation of strategic projects

The Project Management Context (PMC)

The components of *Project Management Context* (PMC), perceived as individual processes and in the SIM framework (appendix 7, figure 7.1), show them linked in a logical series of implementation stages. Based on that structure, the researcher sought to develop a grounded understanding of the implementation routes. In addition to including the preferred combinations of implementation routes used in practice, this approach sought to understand the route selection process and the related Key Decision Factors.

Business Strategy (BS) and implementation routes

There were many attempts in older and more recent literature to clarify business strategy and its implementation. Some authors have offered many suggestions on how strategy can be implemented (Argyris 1989, Artto et al. 2005, Bennet et al. 1998, Crawford et al. 2006, Kerzner 2003, Milosevic et al. 2006 and Morris et al. 2004). As Brown et al. (1995) stated, the underlying organisational approaches and distinctions between the different strategic

implementation routes are not yet understood and require further investigation. For this reason the researcher suggest that a wider view on implementation routes is needed to address the different management approaches in the different organisational situations, especially in case of emergent strategy.

1.3 Research issues

There are, however, some issues that affecting the current research. Those are the following:

a) Organisational distinctive characteristics and project management styles

There is an assumption that every organisation has distinctive characteristics, individual management styles, and their own special goals, thus making each Project Management Style adopted unique. Consequently, it is suggested that the route selection process may depend on the preceding organisational characteristics. The goal of the investigation is to see what takes place in relation to these unique styles.

b) Randomness of implementation route decision choices and the role of diverse key factors

In addition, the findings from the research questions may show that there is *randomness* in implementation route decisions. This might be due to the behaviour of key factors. Perhaps this could explain why managers prefer variant routes. This could be also one of the features that describe the nature of managers' decisions because of the influence factors. On the other hand, the managers' choices might vary every time because of different key factors. On this occasion, how does the randomness of decisions affect the route selection process?

c) Alteration of influence and KDF during project implementation progress

An additional question is: Is the managers' decision on the implementation route selection influenced by the same factors during project implementation continuously, or does it change?

1.4 Aims and objectives

The literature is full of inflexible project management implementation *stereotypes*. This study looks at strategic project management from a different *angle* in order to make it more flexible and responsive to the needs of individual projects. Today's rational - normative project management theory strongly dominates the influence of *rigid* uniqueness in the choice of *implementation routes*. The aim of this study is to close the gap between strategic decision and projects implementation. The result of current study would be the incorporation, formation and conceptualization of organisational strategy within *Project Management Context* implementation routes.

Identification of the implementation route selection process

The objective of this study is to demonstrate how the implementation route selection process in practice. It is not the purpose of this thesis to repeat the long history of project management over the meaning of projects implementation. According to the results of Document 4, organisations often struggle with proper implementation. The effort of this study is to combine the theoretical normative background that exists in projects implementations and the practice of modal choice, as it happens in reality. This will be achieved via a combination of common coupling points of theory with practice.

Identification of Key Decision Factors

So far, the previous literature review and research in practice, performed in Documents two, three and four, revealed a range of important factors (Appendix 2, coded from F1- to F29), for example the human factor, the external and internal factors, the project management maturity etc). This perspective deliberately seeks out information to answer questions regarding what factors influence the *individual decision actions*, how those actions are constructed, and the possible consequences of selecting a particular *implementation route*. (What is the final result)

1.5 Research questions

The following are the main research questions of this study.

1. Do managers use a rational systematic or an emergent intuitive approach when choosing a project implementation route?

2. What factors do managers take into account when deciding what methods or pathways to use when implementing a strategic decision and what is those factors role and influence?

3. Once an implementation route has been chosen, do managers remain with that choice or do they alter their implementation route as a new strategic project emerges?

Strategic question

Based on previous research results of Documents 3 and 4, it was found that the service sector organisations were using a *hybrid route* through the PMC for the implementation of strategic projects. Consequently, the strategic question is:

Is it possible to develop a contingency model to choose the best project implementation route for a particular strategic project in a particular context?

1. 6 Justification

Research justification substantiates studying the results from previous documents for new findings and their contribution to research problems. The implementation of strategic projects, through various *project management routes*, and their *influencing factors* are substantial issues to the modern business environment in terms of projects failures, delays, increased cost and lower quality of delivered products. Therefore, this study considers previous significant findings as a reason for a new direction in current research.

Assumptions on current project management theory and practice

There is an obvious distinction between practice and theory. The traditional theories on project management support the adoption of *specific processes* akin to those in the PMC (portfolio, program and project management). This raises the question *"Has an organisation always the intension of using the same restricted processes recommended in theory?"* In practice, however, these theories assume that organisations are using them in various combinations. Consequently, the assumptions here are that organisations may use a combination of project management processes for strategy implementation. Of course there should be some criteria for selecting an implementation route.

The dilemma for current project management literature

During the investigation of literature, it was found that authors advocate a separate, yet optimal, way to achieve a successful strategic project. This follows the recognition that an organisation should adhere to an *unambiguous process of project management*, inspired by the belief that if it does not, the project will fail. In addition, international project management case studies show that if the implementation factors can be flexibly managed and treated, the project will be a success. The dilemma here is whether to use the common rational processes of implementation routes that are recommended and supported in theory, or to adopt a different approach and deal with the most critical influencing factors.

A new approach of implementation route selection process

This would be a new approach to the way an organisation chooses to implement strategic projects. It could be based on the identification and evaluation of relevant key factors to make the route decision. But the selection process will always act upon an unpredicted environment from the perspective of organisational factors influence. Nevertheless, it is believed that the probability of KDF identification might be used due to restrictions of the individual

managerial process. In particular, this study considers the perception of research outcomes could be used for specific service sector industry needs.

The research of the Key Decision Factors

*P*art of this thesis examines the assumption that the choice of selection route is based on the *continuous evaluation* of factors. This implies the assumption that different key decision factors would cause different route selection. The latter argument implies that there might be hidden, composite mechanisms behind this process.

1.7 Conceptual framework

Miles and Huberman (1994) advance the idea of a conceptual framework to assist in explaining the idea of theory building. This theory relies on a few general constructs with a multitude of details. The creation of a conceptual framework was important in developing and completing this research project. The conceptual framework established in this study links the theories that were explored in the research questions. Project management practices arose from the reasoning of elements and concepts. While documenting each element within the required critical review, the structure and effect of knowledge is assessed.

Consequently, they are arranged into broad components that are more easily related to each other. According to the conceptual framework, it will be possible to assess and criticize the qualitative findings. The components of the conceptual framework are presented in Figure 1.2.

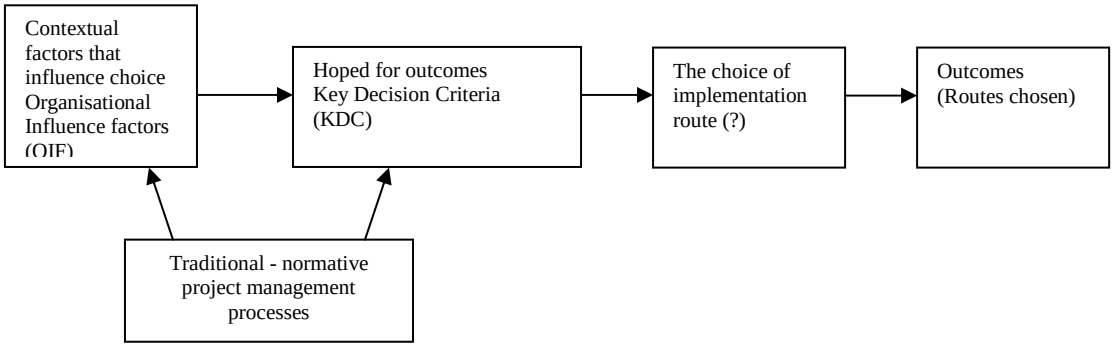

Figure 1.2 Conceptual framework of Document 5 for the requirements of qualitative research.

1.8 Overview of document five

This section summarizes the thesis chapters. Chapters 1, 2 and 3 are dedicated to researching the organisational and project management behaviour of the implementation process, subject to a critical examination of the normative and conventional theories of project management context elements as the universal ‘best practice’ prescriptions offered to practitioners in most

of the mainstream literature sources. Chapter 2 provides background and justification to the research, considering the previous documents results, a review of project failures, and the international intension of further amendment of project management theory. Chapter 3 presents a literature review that identifies and documents the Key Decision Criteria (KDC) and the Organisational Influence Factors (OIF). Chapters 4, 5 and 6 investigate the organisational environment through qualitative analysis of participants' narratives, documents, and observation information. Chapter 4 defines the methodology used to examine and explain the outcomes of research questions. It also discusses interview methodology, ethics, research implementation and justification of the methods chosen. Chapter 5 contains qualitative information from interviews and observation, with data analysis and interpretation. The last section of the chapter considers the different types of project management implementation pathways and their effects. Chapter 6 presents the conclusions and implications drawn from the qualitative data analysis. Making explicit reference to the findings presented in chapter 5, this section answers each of the research questions. Implications of theory on implementation routes test and identification decision factors, limitations and opportunities for further research, are all considered. The last chapter also answers the question: "What do these findings mean?" The chapter outline of this thesis is depicted in figure 1.3.

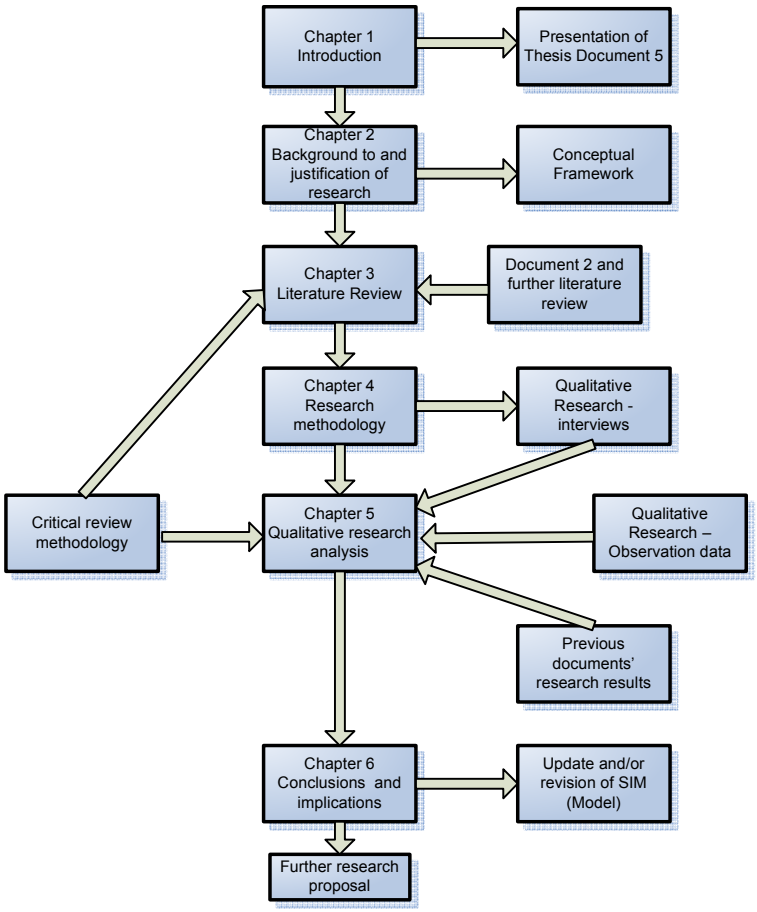

Figure 1.3 The thesis structure of chapters

1.9 Chapter summary

The purpose of this research is to extend the body of knowledge on project management implementation of strategic projects and to examine the contribution of KDF. This thesis is based on work done in previous documents and includes further research built on qualitative and quantitative research results. Additional updates throughout the critical literature review will be considered. To accomplish this, a theoretical framework is developed to examine different business competencies in strategic projects implementations and to demonstrate how the organisations are addressing the decisions of routes selection. This chapter also establishes the research problem, research issues and objectives. Given the critical literature review, a gap in research outcomes justifies this study. The chapter continues with details of objectives and an outline of the ensuing chapters. On the one hand, this study argues that today organisations, in times of growth, should have more flexibility in the implementations of their strategic projects. On the other hand, the route selection must be supported by decision based on evidence. Results of this study might have significant implications and make contributions to a new project management view.

Chapter 2 Background of research

2.1 Introduction

The purpose of this chapter is to elucidate the background to key research disciplines and justify this study. Moreover, is to define the research area and current state of knowledge of project management on implementation route selection. Justification is extended to consider outcomes gained through a radical approach of previous documents results, the project management context (PMC) processes, the project's failures and the general intension of project management community to revise the current PM theory. The discussion conveys the importance and relevance of the research aims and critically evaluates existing knowledge, including background literature and relevant data.

The gap in the literature, the Key Decision Factors, and the route selection process, are identified while the references reflect up-to-date knowledge of the field by highlighting the potential effects on practice. It indicates the direction in the literature between project management studies and their conclusions in terms of projects implementations.

2.2 Chapter overview and objectives

The new approach of projects implementation

The literature of project management processes has recently been criticised for its reliance on functionalist or instrumental views. The function of implementation is taken to be the accomplishment of a finite task (rational - normative theories) in a specified period of time, within a certain budget and to an agreed specification (PMI 2006, Grundy 2000, Kerzner 2003). This research offers an alternative perspective: project management processes are not ready-made, rigid and neutral, but are constituted by the actions of interdependent actors. The process should be performed through the projects assessment that relate to the influencing factors that act as key decisions and expectations drivers for the selection of the organisational strategy implementation route.

Chapter objectives

The objectives of this chapter are to consider the following as a background to this study.

- A brief presentation of findings regarding implementation routes and their influencing factors from the quantitative research performed in Document 4 and the qualitative research performed in Document 3.

- An endeavour to describe the research gap and its potential implications based on projects failures.

- A discussion of the intension for a new strategy implementation approach and revision of project management theory.

2.3 Results of the project management routes and influencing factors from the quantitative research of Document 4

Documents 1-4 identified the links in the Project Management Context (PMC). Participants described the way they use multiple implementation routes (S1-S5, table 2.1). Quantitative research has explored the routes which respondents believe were most commonly used in their organisations.

The hybrid implementation routes (S1-S5)

A combination of implementation routes is used in practice. The dominant one was the S1 – "Portfolio and project management route." In addition, there is a split in the percentages. A very small percentage shows that "Portfolio to program and project management route" was perceived the most integrated route suggested in the literature. An even smaller percentage preferred " using other mechanisms and practices." The percentages are depicted in figure 2.1. Those routes show the normative process of projects implementation.

Codes	Implementation pathways used	%
S1	Portfolio to program and project management route	**12,38%**
S2	Program and project management route	**18,10%**
S3	Portfolio and project management route	**33,33%**
S4	Direct to project Management	**28,57%**
S5	By using other mechanisms and practices	**7,62%**

Table 2.1 Percentages of implementation routes used (Document 4 - Chapter 3: quantitative analysis and results)

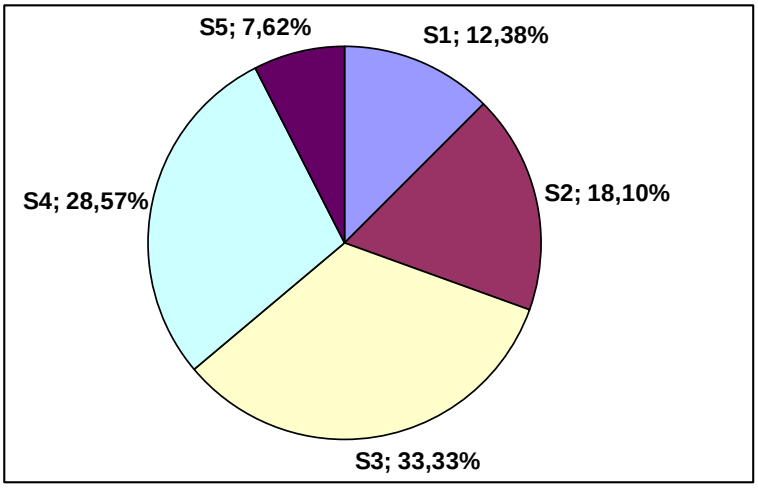

Figure 2.1 Percentages of implementation routes used (Document 4 - Chapter 3: quantitative analysis and results)

The flexibility to select an implementation route

The interviewees noted that they liked having the *flexibility* to use the implementation route that corresponded to the strategic requirements of the project. Their insight was that there should be more than one standard route for strategic projects implementation. This was a very useful finding with which to begin this study. This generates the question of whether organisations use alternative implementation routes beyond the normative ones.

2.4 The influencing factors of implementation routes revealed in previous research (Documents 3 and 4)

The following calculations were performed regarding the influence of factors on implementation routes. The analysis of average (total) percentage proportions, of influencing factors (F1- F29) per implementation route used (S1- S5), is depicted in figure 2.2. The X-axis shows the F1-F29 factors. The full description of those factors is illustrated in appendix 2. There is an assumption that some of these factors could also influence the managers' decisions regarding the route selection.

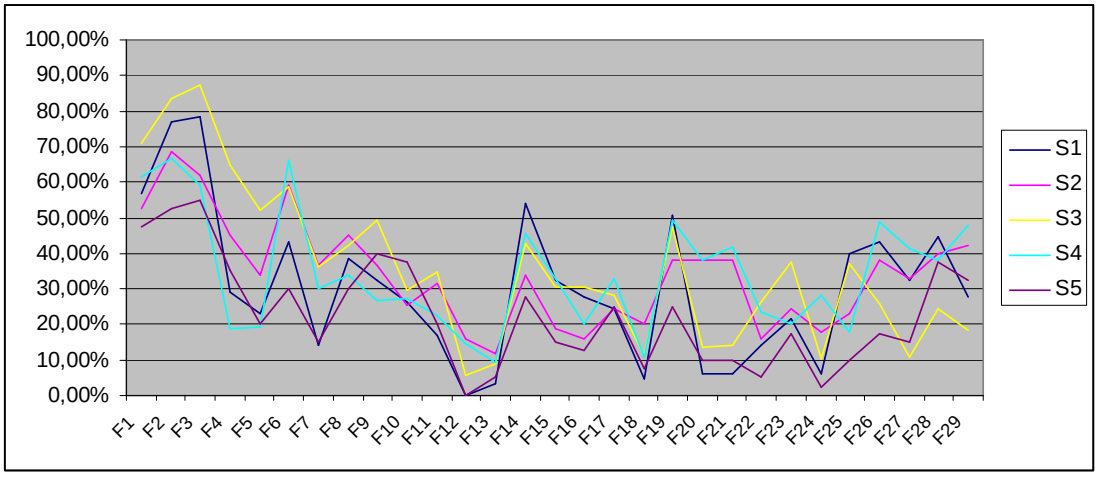

Figure 2.2 Presentation of influencing factors (F1-F29), (see appendix 2, where they are sorted according to the percentage proportion score per implementation route S1-S5)

The role of influence factors in Project Management Context

According to Document 4, in order to enhance the proposed *Strategy Implementation Model* (SIM) framework, it is necessary to assess and identify its most important factors. Those factors affect the portfolio, program and project management processes more than others. The status and behaviour of those factors should be assessed and controlled continuously. Their influence depends on existing organisational situations at a specific point of time, in association with the implementation route (S1-S5). Subsequently, the inference here could be that each factor depends on the implementation route selected and the positive or negative influence of the other related factors. Based on the latter arguments, by some means, those factors should influence the implementation route decisions of managers.

The results from qualitative research (Document 3) regarding the influencing factors

In qualitative research, the organisational project management implementation was found to be more concerned with results than with the *maturity* of project management. Thus, initiatives were undertaken (in an ad-hoc manner) and pressure from senior management increased to accelerate the delivery of the strategic projects was reflected in the organisational emergent strategy. This led to the hypothesis that the decision of an organisation to use different implementation routes might be influenced by emergent strategy.

The research approach here is to investigate the normative implementation routes (table 2.1), in order to understand the nature of the content of the work performed in this area. This will be achieved by defining what factors are involved and what is making organisations use those routes. Moreover, by means of the same logic, route-selection influence factors will be investigated with the literature review in chapter 3.

2.5 Projects failures

There are several reasons for project failure. Moreover, it is evident from the literature that project failures are the wrong anticipation and management of factors proactively. Time, cost, quality, human factor, internal and external factors were observed as most related factors in project failures. Some of them are unanticipated while others are inevitable for various external and internal organisational reasons. Strategic management and project management have a common enemy in overcoming the constraints posed from the strategic projects implementation (Grundy 1998). The constraints to be overcome, the actions taken, the content and the processes should be related and influenced by a range of factors before and during projects implementation. In contrast, this does not exclude the decision of the implementation route followed. While such analysis is a general point of view, there is no single explanation for why projects failed. If the estimation and management of the influence factors could be performed proactively, subsequently this might be helpful to avoid project failure.

The literature review revealed many examples of project failures, a few of which are illustrated in appendix 1. Why are there so many projects failures? Are the failures related to factors and the initial route selection process? An assumption is that the implementation route decision and the proactive estimation were wrong. Perhaps the influence factors were misunderstood. If this is the case, how can we identify them proactively?
However, studies on project failures, for example using portfolio management theory, might show imperfect measures of risk sensitivity. Therefore it cannot guarantee the outcome of a strategic project with its particular risks.

However, there is not much to report the way of project success. Survey after survey has presented that project management failure is more often than the success.

The intension of this study concentrated in further research of today's project management normative theory. The narrowness of traditional project management theory has also been noted. The following sections discuss the new approach of strategy implementation and revisions in project management theory. It also reviews the role of the "classical" school of project management and the widening gap between project management theory and practice. The literature shows a growing intension of rethinking project management process and organisational management practices. Many researchers now perceive project management as a philosophy of management, because of the growing criticism of the intellectual and philosophical foundations of project management.

2.6 The intension of a new approach of strategy implementation

The intension of a new approach of strategy implementation should be reflected with projects' success or failures and how they are related with implementation routes and proactive management of factors. Indeed, based on Noble's (1999) arguments, seems that the majority of failed project management strategies break down during the implementation phase of a strategic project. From another standpoint, Lorange (1998) noted that today's organisations have been re-engineered to be relatively flat and are heavily networked, requiring a new kind of approach in strategy implementation. He stated that: "The root causes of wrong decisions are often hidden behind core, management blind-spots." On the other hand, the underlying assumption is that researchers and practitioners have not investigated this area. Bonoma et al. (1988) raised an interesting point that implementation structures and skills influence the nature of the formulated strategies. The latter is reflected in the organisation's project management maturity. Another example is the 1000 projects (implemented through improved project management routes), that the Performance Measurement Group (PMG) recently analyzed (2008). The previous study looks reliable and valid as evidence because of its large sample and research method. The analysis showed a 20-30% improvement in time-to-market for new products. In contrast, Kerzner (2003) cited organisations that used modern project management routes and had documented a 300% increase in completed projects. Kerzner based his paradigm on reliable and valid studies from recognized authors and large organisational samples. All previous examples and references show the active intension for a new approach in strategy implementation and improvement of project management theory.

2.7 The intension of further revision in project management theory

Previous investigation observed two perspectives among participants regarding project management theory and its usefulness. The first view is that theory is generally of little use because of the gap between theory and practice. The second view is that any new theory should be closer to practice so that it can assist in project management processes. The latter arguments justify the aims, the intension and the direction of investigation of this study.

The "classical" school of project management

The research results in Document 4 showed that the implementation of strategic projects moves towards with the intension to use a combined route, but does not explain how that is performed. The normative project management theory has both strengths and weaknesses. Neither the tools nor methods described (either in project management literature or in the business management theory, on their own or in combination) have created the emerging implementation route selection. At the same time, project management theory has evolved, in its specialized area, along very similar lines of general management theory. Initially, project

management closely mirrored the "classical" school of management with a focus on processes (scope, time and cost). More recently, the emphasis has shifted towards the "soft skills" more closely associated with the "human relations" and "human resources" schools of management theory, including more focus on stakeholders, communications and leadership. However, as Weaver (2007) commented: "One wonders if the next phase will mirror the chaos theory if it hasn't already." This implies the unpredictable organisational world including the consequences of normative project management theory.

The widening gap between project management theory and practice

The assumption that there is a widening gap between project management theory and practice dictates the need for a rethinking of theory. However, according to Maylor (2001), there is a need for a new method. Indeed, the traditional normative approach is based on computational planning and control models, originating in large projects since the 1950s, and is used extensively by many traditional project industries, and especially by aerospace, defense and large construction contractors (Kerzner, 1998). Noble (1999) suggested that more study needs to be done to identify the factors that influence individual-level commitment, performance, and success in strategy implementation. However, this is not to argue that traditional normative project management theory should be abandoned. There is, however, a need to develop this field and to create more innovative but flexible ways of implementation.

The intension of rethinking Project Management Process in relation to organisational management practices

Winter et al. (2006) noted that projects are not freestanding and independent of their organisations. The subject of project management continues to attract criticism and the gap between conventional project management theory and developing practice is widening. Around the world, there is increasing concern about the relevance and value of traditional project management theory and its relationship to the growing practice of managing projects in different industry sectors (EPSRC 2005). Artto et al. (2005) suggested, however, that project management research has yet to identify and address all issues that are important in strategy implementation in a real-life business context. In addition, Griffin (2005) suggested that management knowledge requires continuous learning and keeping abreast of current research and information so as to avoid repeating earlier mistakes. Therefore, organisations should regularly examine their management practices in relation to strategic projects implementation (Drucker, 1994).

The growing criticisms of project management field's intellectual and philosophical foundations

At a more significant and fundamental level, there are growing criticisms of the project management field's intellectual and philosophical foundations that are rarely made explicit in the literature. From a systems perspective, conventional (normative) project management theory is now seen as 'hard' systems thinking (Checkland 1981, 1990). There are now calls for research to enrich project management theory with ideas and approaches from 'soft' systems thinking (O'Connor et al. 1997, Morris 2002, Skyttner 2006) and system dynamics, (Ackermann et al. 1997, Argyris 1989). Fricke et al. (2000) argue that most of the literature on project management still concentrates on a single project, and assumes limited interactions among projects. In the same way, Morris (1994) claims that we should broaden the subject to the 'management of projects' rather than keep to the narrow area of 'project management normative theory'. Similar calls for a more strategic perspective can be found in the work of Cooke-Davies (2002).

Revision of the narrowly focused normative project management theory

One criticism of traditional project management theory is its focus on the management of specific and rigid Project Management Context (PMC) processes rather than on ways to use implementation in order to avoid failures. Hodgson (2002) stated that the conventional project management theory *is too narrowly focused* and that criticisms range from the practical to the philosophical. Tikkanen (2007) contended that there is little research on managing delivery project portfolios. Furthermore, there are growing criticisms of the "*Project Management Body of Knowledge"* (PMBOK) (PMI 2003, 2004, 2006) and the UK Association for Project Management's equivalent body of knowledge (Dixon 2000).

Moreover, Brown et al. (2000) noted that the continuing poor record of projects in relation to the delivery of objectives shows that project management has not yet been properly implemented in relation to the theoretical bodies of knowledge which have been designed to support it. In contrast, Maylor (2001) stated that the Project Management Body of Knowledge is based more on *empirical evidence than theoretical definite knowledge*. This adds the characterization of old background of empiricism to the rigid theoretical approach of PM processes.

Blomquist et al. (2006) stated that this process is frequently described but does not show clear evidence of the way that different organisations implement its governance structures.

Project management as a philosophy of management

The genesis of the ideas that led to the development of modern project management can arguably be traced back to the protestant reformation of the 15th century. The Protestants and

later the Puritans introduced a number of ideas including ‘reductionism’, ‘individualism’ and the ‘protestant work ethic’ (PWE) that resonate strongly in the spirit of modern project management. Many of the ideas implicit in the early days of our profession (from the 1960s to 1980s) are firmly rooted in the ideas of Scientific Management. On 1970s, the focus of project management was spreading from its roots in scheduling and its “home” in the defence and construction industries to embrace all industries. At the same time, the emerging recognition of the distinctive nature of project management, as a special discipline, recognized by a number of leading writers (Weaver 2007). As Grundy (1997) stated, over the past few years, there has been increasing interest in project management as a vehicle for strategy implementation. This interest has resulted in significant advances in:

a) The understanding of how strategy can be more effectively implemented;
b) The notion of what project management can, and should, stand for.

Unlike other disciplines, project management as a formal discipline is just fifty years young. Perhaps a few more decades shall be required for sufficient knowledgebase to be built up, before the present failure rate can go down to a more comfortable level. “The emphasis is on machine-like conceptions of organisations and projects, and realist assumptions about ‘organisations’ and ‘projects’ as entities existing ‘out there’, independently of the people involved”, (EPSRC 2005, Cismil et al. 2006). According to surveys, research and case studies, there is a high tendency towards improving project management theory, structure and performance. A report by Berkshire Consultancy Ltd (2000) showed a *lack of project management knowledge* in 100 companies participated in the survey. The previous survey was performed in a large sample of organisations. It might be biased but the results could be evaluated and contrasted with other similar surveys on project management maturity which showed the same results.

Furthermore, Aubry et al. (2007) observed, on a global level, that “The current project management literature is lacking two elements - theoretical foundations and valid, verified, pragmatic models”. He also pointed out that the confusion in the literature stems from a semantic gap between the meanings given to the concepts of program and project portfolio management processes. This is related to the identification of the processes which are responsible for this function, and whether they are program or portfolio processes at the end. Thiry (2004) noted that many new management techniques come and go every year; a few seem to be here to stay. Those assumptions are reflected in the argument that realistic and practical applicable theories of project management should have many years of dedicated research and development behind them.

The intension of further research in project management area

Several leading academics have expressed serious concerns about the quality of many recent project management publications, highlighting, for example, weaknesses both in their relevance to practice and in their general understanding of research methodology (EPSRC 2005 and Cismil et al. 2006). In addition, there are increasing calls for the identification of new research perspectives and new innovative research topics in project management from related disciplines, such as the general management literature and the newly emerging field of critical management studies.

Project management theory and projects failures

In conclusion, the review of projects failures reveals two possible reasons: 1) the theory on supporting and directing project implementation process; and 2) the experience and project management maturity. The extensive number of consequences examined by authors and institutions clearly demonstrates the complexity of those two issues. If project management lacks a strong realistic base, perhaps it has failed to establish its own domain within the management arena. The latter drives the researcher's intension for an innovative approach to the theory of strategic projects implementation.

A step forward

Bryce (2006) defined the project management process as, "First and foremost, a *philosophy of management*, not an elaborate set of tools and techniques nor an administrative function". Based on previous arguments, this new research direction ensures that the philosophy of strategic project implementation could be successful based on *rational flexibility* (Vassilopoulos 2003). The researcher has looked at the key areas and outlined a number of elements that will contribute to the aim of this study. The next chapter reviews the literature on the implementation routes and their influence factors.

Background Synopsis

There is now increasing concern about the relevance and value of *traditional project management theory*. Project management is derived from defence and construction industries and so needs revision to meet business environment requirements. Several studies have shown a widening gap between project management theory and practice. The purpose of implementation is the accomplishment of a finite piece of work based on normative theories, so this is not a solution for all strategic projects.

According to Document 4, statistical results, there is already the intension of using combined implementation processes. Previous research also revealed that the need for *flexibility* to use

the route corresponding to the specific strategic project requirements. The participants in previous research (Document 4) suggested that there be more than one standard route for strategic project implementation. In addition, there is a range of influence factors (F1- F29) per implementation route. Those factors also have reciprocal influence. The level and importance of their influence depend on existing organisational situations and facts, at a specific point of time, in association to the implementation route. Therefore, that might increases the need for treatment and flexibility in projects implementations in order to manage risks and avoid failures.

The fact is that previous research also revealed that the existing organisational intension is concerned with results than with increasing the maturity in project management. Moreover, the requirement of rapid delivery of an urgent strategic project, was found to be related and associated with organisational *emergent strategy*. Quick results push projects for implementation while decreasing the level of project management maturity. That means organisational project management maturity will not be developed because of emergent strategy. This might also mean that the maturity in projects implementation through alternative flexible and quicker routes is increased.

On the one hand, traditional but rigid project management theory is blamed for projects' failures. On the other hand, project failures might be related to inaccurate and not proactive anticipation of influence factors. For example, portfolio management theory, might uses "imperfect measure of risk sensitivity" so, it does not guarantee the outcome for a particular strategic project. In addition, current normative theory does not show clear evidence of the way different organisations implement their governance structures.

In conclusion, project failures reflect the gap between project management theory and practice. The inference is that the new project management theory should be closer to reality. Project management research has yet to identify and address all issues that would be important in strategy implementation in a real-life business context. Therefore the revision of project management theory should be based on rethinking project management process and organisational management practices. Schema 2.3 shows those intensions and the pathway of revision regarding project management implementation theory. The emphasis has shifted now towards the "soft skills" that is closely associated with the "human relations" and "human resources" schools of management theory, including more focus on stakeholders, communications, leadership and other related influence factors.

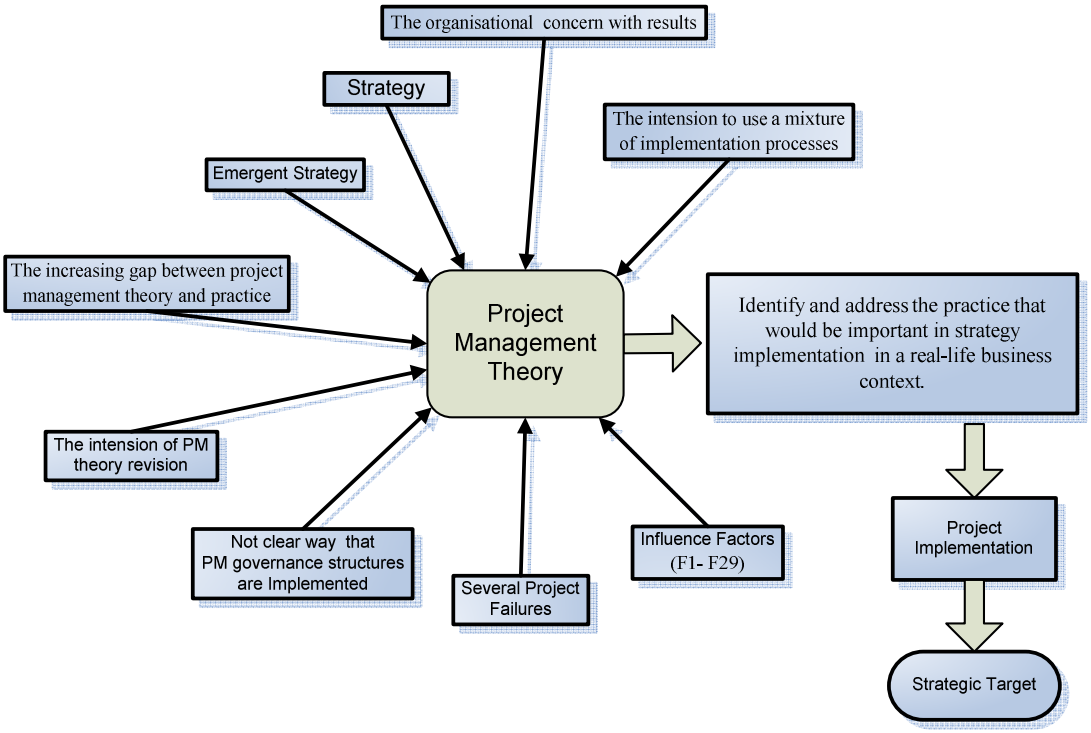

Figure 2.3 The revision course of project management theory regarding strategic projects implementation.

2.8 Chapter summary

There are significant points in theory, research and practical knowledge constructed on the basis of justification that lead to further study of the strategic projects implementation framework. Implementation routes' selection decisions are bound to the nature of influence of practical sense-making (the Project Management Context) where various (unpredicted) organisational situations apply their implicit rules. The project management processes and their influence factors, from qualitative research in Document 3 and quantitative in Document 4, are the bases to move forward. Finally, the research gap, the intension of new strategy implementation approach, the various projects failures and the intension of further revision in project management theory discussed. The literature review in chapter 3 covers all aspects of competencies of the implementation routes and their Key Decision Factors. The literature on this subject includes all aspects of conventional project management theory.

Chapter 3 Literature review

3.1 Chapter overview and objectives

Chapter two discussed the background and justification of research on the current status and tension of the Project Management Context (PMC) regarding the implementation of strategic projects. The research into projects failures indicated the necessity of a more vigilant re-assessment of current project management theory. This chapter presents an outline of the literature review. The first objective is to describe the implementation routes described in the literature and assess their normative or descriptive level. The second is to identify a range of key decision factors that might affect managers' decisions on implementation route selection. The the role and the influence of emergent strategy will then be identified.

Classification of literature

The literature review is divided into two parts: organisational-strategy and the project management context. Researchers examined the problems and factors at different levels. Therefore, the literature sources were assessed by looking at their contribution to the subject. There was concern with how organisations implement their strategic projects, although the literature usually does not focus on the details of the route selection process.

Some strategy and management researchers have emphasised that what is needed is a better understanding of the significance of organisational, strategic alignment with project management framework. Innovative theories, trends, and challenges revealed from investigations of the allied disciplines of project management practices should, therefore, have implications for the research subject.

The literature review focused on the degree to which the work is normative (how project management should be performed) and whether it engages with a descriptive account of how project management is actually performed. The review also sought the factors and implementation routes that appeared to add a useful perspective to the research questions. The critique also examined the quality and reliability of research.

Furthermore, the literature review builds upon the findings of document 2. The review is representative of the limited amount of information required for the study. The literature investigation followed the logic of theoretical sampling of Glaser and Strauss (1967). This helped the researcher to select only most relevant information (for example, for the identification of organisational influence factors) from the literature.

Finally, the collected literature included sources on new trends and thinking in project management and alternative approaches to processes. Finally, the concept of "theory and practice" in relation to the development of organisational project management capability was also investigated.

Part one: organisational strategy

The first part presents the sources of business management, the process of formation of strategy, guides of strategy implementation from theory to practice, and strategy design and development in relation to organisational performance. That means all those theories of normative strategy translate into action and suggestions of alignment. Strategy and project management scholars have studied the external aspects of projects implementation and the impact of external factors on implementation process. The key authors for reference are Porter (1980,1998), Mintzberg (1985,1998), Argyris (1989), Barnes (2001), Carland et al (1990), Drazin et al (1984), Drucker (1994), Gupta et al (1984,1987), Hamel et al (1989, 1996), Hill (2001), Hussey (1998), Leavitt (1965), Nonaka et al (1994-2000), Noble (1999). The literature sources included works on the implementation of corporate strategy, deliberate or emergent projects.

Sources on strategic management, and obstacles to effective strategy implementation were included: articles from international journals of business strategy, strategic information systems, management research, operations and production management, productivity and performance management, strategic management, and empirical studies.

Research on strategy frequently treated organisational factors and problems with strategic projects. This was very helpful during KDF investigation and identification.

Part two: project management context

The second part included sources on project management strategy, portfolio, program and project management. There were also themes of strategic business management through projects and strategic organisational behaviour. The literature sources included guides and handbooks on project management, trade publications on project management (PMI, AMACOM, APM) and books on project management.

In addition, articles and papers were collected from Harvard Business School, IEEE Transactions, European surveys, *TQM Magazine*, PMI community posts, and papers presented at annual international conferences and Standish Group reports. The latter sources emphasised strategy implementation and project management, and the alignment capability of strategy through normative processes researched. The role of centralised Project Management Office (PMO), as a strategic enabler of business change, was also considered.

Many of the recent articles are promoting the process and that gives value in project management context when it is performed in normative way (Morris 2004, PMI 2004-2006, Grundy 2000, Kerzner 2003, Artto 2005). Much of the recent literature on project management deals with the process through which organisations assimilate (or should assimilate) project management that has been developed in the various bodies of knowledge (BOKs). Normative theories on projects implementation of PMI (2003, 2004, 2005, 2006, 2009) were developed by professionals. However, because of the lack of reliable evidence, it is impossible to assume that the suggested disciplines could be the optimum solution of strategic projects implementations success.

Researchers in the field of project management have frequently emphasised the alignment of projects with strategic objectives. Among these researchers are Kerzner (2003), Shenhar (2005), Grundy (1997), Thiry (2002), Pinto (2004), Martinelli (2005), Englund (2000), Morris et al (2004), Jaafari (2003), Knutson (2001), Maylor (2001), Milosevic (2006), Srivannaboon (2006), Project Management Institute (2006), Dinsmore (2005), Crawford (2006), Cicmil (2006) and Artto (2005). That literature contained theories, regarding normative implementation processes of strategic change through projects and the role of organisational complexity. In general, researchers assumed that the emphasis of strategic projects implementation within organisations shifts from product innovations to process improvements. In addition, there were themes on social practices, the management of knowledge in project environments, the concept and the understanding of project-based organisational structure and frameworks of organisational project management through the PMO.

Moreover, all the literature sources identify critical factors which affect the planning and implementation of major projects. In other words, various situations and deficiencies may hamper strategy implementation and, in turn, the project managers may not use an implementation route throughout project management context. Researchers have discussed the problems of project management from the individual resource or project manager to the organisational-state levels.

Other researchers have tried to understand how managers should make decisions regarding the project management process of implementation. Strategic management researchers are more likely to view the cultivation of strategic project implementation neither in an abstract manner nor as an organisational phenomenon, but as a multidimensional process. Finally, reports of failures in project management have been investigated by Bostrom et al (1977), the Center for Business Practices (CBP) (2008), McManus et al (2008), the Standish Group (2000) and Bryce (2006).

The direction of investigation in literature review

The literature review begins by synthesising the perceptions surrounding the implementation processes and the influence factors that affect managers' decisions. According to Hurt (2005), the enormous literature available can be made manageable by using the previous parts of literature. Such classification is applied to convince that the sections used to classify particulars are plausible. By this approach, the literature information boundaries are thematically structured. The stance of this investigation is to "keep on questioning" if the discovered information can support the research task. The content of the literature presentation is divided into three sections: 1) the current normative implementation routes, 2) the decisions influence factors, and 3) the role of emergent strategy).

This classification provides a descriptive foundation with which to map ideas and arguments for evaluation and assessment. Thinking analytically, understanding the notions, finding the connections and recreating new interesting schemes is achieved by acquiring, structuring, and comparing procedural arguments as key concepts and theories.

The literature review is structured as follows:

- Identification of the relation and link between organisational strategy and project management regarding the research subject.

A. Based on the research question: *"Do managers use a rational systematic or an emergent intuitive approach when choosing a project implementation route?"*

- Description of the current rational theories of project management routes found in literature, but also identification of the existing alternative implementation methodologies.

B. Based on the research question*: "What factors do managers take into account when deciding what methods or pathways to use when implementing a strategic decision? What is their role and influence?"*

- Definition of the *Key Decision Criteria* , (expectations) that might influence the route selection process, an

- Identification of the *Organisational Influence Factors* (OIF) that influence the managers' route selection decisions.

C. Based on the research question*: "Once an implementation route has been chosen, do managers remain with that choice or do they alter their implementation route as a new strategic project emerges?"*

- Discussion of the emergent strategy influence in strategic projects implementation.

The role of the link between organisational strategy and Project Management Context

Many authors have stressed a positive correlation between strategy and project management. The literature defines the implementation of strategy as the actions that are undertaken to attain corporate objectives (Bourgeois et al 1984, Drazin et al 1984, Gaertner et al 1984, DeRijcke et al 1985, Nutt 1986, Floyd et al 1992, Chebat 1999 and Dobni 2003). Researchers differ with regard to the content and sequence of activities that constitute the implementation process. Milosevic (2006), Srivannaboon (2006) and Morris (2004), gave a descriptive account of how this is performed through case studies and investigations. Organisational strategy implementation, according to the previous arguments, has been identified as an organisational vision, achievement of goals, the direction and scope of future success and a win over the long term by developing the direction and the position in the markets with sustainable competitive advantage (Olavson 1999). Several researchers recognise strategy implementation as a *complex process* that is ongoing and needs special treatment. As a result, many researchers have tried to break down the implementation process into a sequence of stages in order to study the relationship between them and the development of an indigenous process capability, although researchers have not probed the route selection process.

The next step of implementation suggested by several researchers and professional associations, PMI (2003, 2004, 2005, 2006, 2009), Morris (2004), Grundy (2000), Kerzner (2003), Artto (2005), is to translate the operating plans to programs or projects aligned with the corporate strategy. That means implementing the right project (Luftman et al 1996 and McAdam et al 2002). On the one hand, this is a *normative* route for strategic projects implementation suggested and supported in *majority* of the literature. On the other hand, several authors insist that while obtaining the strategic target is a necessary step toward determining which what actions should be performed, there is no guarantee that the organisation will effectively use the implementation process chosen.

Beyond this sequence process, strategy implementation is characterised as a multifaceted and complex organisational process (Noble 1999). The implementation stage is the conversion of strategic *alternatives* into operating plans as stated by Hussey (1998), Kaplan et al (2001) and Johnson et al (2005). This review provides further evidence on *strategic alternatives* that might influence project implementation and route selections.

In the project management literature, organisational strategy is perceived as a portfolio of projects of integrated business strategies. This action has been suggested by authors (Kerzner 2003, Artto 2005, Cismil 2006, Grundy 2001, Morris 2004, Milosevic 2005 Hauc et al 2000) and professional bodies (PMI 2004, 2006) as normative - rational way of implementation. Similarly, most authors argue that strategic management has become increasingly project oriented. Moreover many organisations around the world are realising that corporate strategy is *delivered through projects* which are implemented through the Project Management Context. This is the key to their ability to deliver their strategic intent, as Crawford et al (2006) argued.

Similarly, the competencies for the PMC framework were suggested by Project Management Institute (PMI) in the OPM3 (2003) standard, the Organisational Project Management Maturity Model. This model has introduced the three elements as sections of Portfolio Management, Program Management and Project Management. According to the normative theory of project management, organisational strategy is perceived to be linked to portfolio through program management processes. Complementary to the previous identification from PMI (2003), a more comprehensive and normative view is presented by the United Kingdom's Association for Project Management, which gives a fuller recognition to the business context, where a strategic project resides, recognising portfolio and program management as key implementation processes. Similar normative approaches have more recently been given by other authors where those processes have an important role to play in strategising (Aubry et al 2007, Kerzner 2003, Artto 2005, Cismil 2006, Grundy 2001). Those responses are consistent with Verzuh (2005) who identified three tiers of management in his Enterprise Project Management Model.

The main conclusion seems to be that strategy formulation and the project management framework are (or should be) linked. Since this literature review is exploratory, its results show that authors have suggested that the implementations of strategic projects be performed through the rational direction given by current project management theory.

The previous paragraphs discussed the link between business strategy and project management. The following section presents, historically and analytically, the project

normative management implementation routes, their advantages and disadvantages, their ambiguities and their possible overlaps, as found in the literature.

3.2 The normative - rational approach of implementation routes

Using portfolio management process

A heterogeneous global literature has emerged on the implementation process, showing a link between portfolio management and project management (Engwall et al 2003, Fricke et al 2000, Artto et al 2001, 2004, 2005, Elonen et al 2003). From this viewpoint, many studies indicated that project goals and benefit expectations are forwarded from the portfolio level directly to the project management level. For example, researchers have identified three stages in the implementation process: portfolio, program and project management (PMI 2006, Kerzner 2003, Artto 2005, Cismil 2006, Grundy 2001, Morris 2004, Milosevic 2005).

Some studies show the employment of portfolio management processes since the 1970s. For example, a survey done in the 1970s reported that 45% of the Fortune 500 companies were using some form of portfolio planning (Thomson 1998). The objectives of this route is to become conscious of all the individual projects, to develop the "bigger picture", align them with long-term strategies and get the "best bang for the buck" from the resourses that are invested (Greer 2006). As another example, the independent survey of CA (2009) showed that organisations now have a higher degree of portfolio management. The latter survey might be biased from vendor's profitability intentions. In contrast, the Office of Government Commerce (OGC) and the Association for Project Management (APM) in the UK as the Project Management Institute (PMI) in the USA seem to recognise that organisations today may have one or more project portfolios, each of which contains several programs and projects (Weaver 2008, Gaughan 2005). In contrast, the Meta group (2004) and Garner PPM (2005) showed that companies that have adopted only some form of portfolio management route benefited from a project cost reduction. In addition, a survey by Jeffery et al (2003), identified 78% as planning to have or to keep using portfolio management. Since then, Forrester (2009) has reported several additional benefits of using this route. This shows the tendency of improvement and necessity of portfolio management process. Forrester Research is an independent technology and market research company that provides its clients with advice about technology's impact on business and consumers. The validity of Forrester's research is based on interviews and surveys from 22 vendors and user companies, including AtTask, CA, Compuware, Gensight Group, Innotas, Planisware, Planview, and Power-Steering Software.

However, Miller (2002), criticising contemporary portfolio management, stated that project managers were failing to take into consideration the criteria that might directly impact a project's success. For example, he stated that project prioritisation, an important key decision factor in the portfolio management process, was being overlooked. In addition, Meta Group (2002), found that 89% of companies are flying blind, with virtually no metrics in place except for finance. The latter findings show that portfolio management process might sometimes have been misinterpreted. This leads to the following review of the use of particular portfolio practices.

Using particular portfolio management practices

According to Englund (2000), no companies seem to be following the route of portfolio management particularly well or systematically. Martinsuo et al (2006) justified the previous argument by relating portfolio management process efficiency to the achievement of project goals. Similarly, Blichfeldt (2008), connected portfolio with project failures and cited it as one of the key reasons behind project failures. This was because of the inefficient portfolio management. For example, other projects tie up resources that had initially been dedicated to portfolio projects. Englund et al (1999, 2000), however, took a different approach to portfolio management efficiency.

> If an organisation is not focused on result and only interested in control, it is creating an illusion of productivity.

Finally, Martinsuo et al (2007) concentrated on other organisational factors. He suggested that portfolio-level issues needs to be related to *organisational factors*, such as project management maturity.

The role of organisational factors and criteria in portfolio route selection

According to Blomquist et al (2006), one important factor is the complexity of the organisational environment. Higher complexity, expressed as the number of influence factors taken into account during decision-making, leads to the use several portfolio management practices. These are the processes and tools based on the organisation's strategy, deliberate or emergent, the prioritisation of projects and communication of the priorities (Rapert et al 2002). In addition, AMR (2009) suggested that "best practices" and *key logical steps* should play an important role in the selection of an implementation route. The suggestions, positions and arguments from all those authors lead to the assumption that portfolio management should be constructed as a process after the assessment of influence factors and based on specific criteria.

The route of portfolio and project management

Earlier studies by Milosevic (2005), Souderlund (2004), Engwall (2003), encouraged further research in a larger sample of different companies and different types of projects to verify the implementation through the route of portfolio and project management processes. Similarly, the survey results in document 4 showed that the first dominant selection was the "route through portfolio and project management process".

Moreover, Cooper et al (1997) identified the role of project portfolio management as to maximise the value of company objectives, to achieve a balance of projects, and to ensure strategic direction. The previous statements have led to the contention that there was a recognition of organisational strategy and perceived project management *efficiency* as factors for choosing it as an implementation route. Therefore should be a range of criteria from which to choose the appropriate route process.

The later argument justifies the role of key decision criteria on implementation route selection.

Finally, Dietrich et al (2005) related portfolio management efficiency with organisational efficiency. The benefit that portfolio management offers is the continuing review of the ongoing projects' objectives in conjunction with organisational strategy formulation. This argument gives the evidence of the need for continuous *reflection* between implementation routes and a deliberate or emergent organisational strategy.

Using program management process

There are several definitions of program management, and it is clearly connected with the management of a project portfolio. The literature suggests a cascade from global strategy to portfolios, from portfolios to programs, and from programs to individual projects. Portfolio management, according to PMI (2006), is linked with program management and ensures that programs and projects are a priority for resource allocation that is consistent with and aligned to, organisational strategy. The strategic objectives are inserted into program processes in the form of strategic goals, funding allocations, requirements, timelines and constraints. These forms are then translated into program scope, budget, deliverables and schedules. This link and direction are performed from the portfolio to the program domain, according to the feedback of performance and status of active programs and projects. The interactions, through this link, are related to initiation stages, life cycle, and closure of a program.

Meanwhile, program management focuses on achieving the benefits aligned with portfolio and, subsequently, strategic objectives. As Martinelli et al (2005) stated, program management should align with the overall portfolio management and coordination.

Taking another approach, Englund (1999) stated that, during portfolio management process, projects are selected and assigned with appropriate targets, resources, and schedules and then forwarded to the program-planning phase. In this sense, programs are perceived to be at the *heart* of the project portfolio. PMI's (2006) is claiming that there are many *interactions* between portfolio and program management, generally in the planning, and initiation stages of a program.

The ambiguous route through program and project management.

Many authors and project management professional bodies have tended to see program management as an extension of project management (Pellegrinelli et al 2007). Furthermore, the assumptions, through the critical review of programme management approaches conducted by Lycett et al (2004) and Pellegrinelli et al (2007), were that programme management is a scaled-up version of project management, and that a 'one size fits all' approach is appropriate. According to Hanford (2004), there are several major aspects of using program management. Project management is concerned with the dynamic allocation, use and direction of human and technical resources in relation to individual efforts and to product delivery schedule and costs. Winter et al (2006) stated that future research needs to acknowledge this context. This discipline describes principles, strategies, and desirable results for managing large-scale efforts comprising parallel projects (Kezsbom et al 1989). Finally, Vereecke et al (2003) noted a considerable confusion over the lack of organisational project management maturity. The latter argument expresses the *particular program management practices* adopted in some cases, as a mixture with project management process.

Using project management process

Themistocleous et al (2000) and Zobel et al (2000) identified some of the industry sectors such as manufacturing of basic materials, conglomerates, consumer goods, financial, healthcare and industrial goods that selected the route through *direct project management*. This is evident in current theory on deliberate or emergent strategy where urgent strategic projects are quickly implemented through project management to deliver results in order to meet stakeholder needs and expectations. Weaver (2008) noted that the key element in project management process is effectiveness, given the function or the product that the strategic project has been initiated to produce. Previous studies have already examined this using many different approaches, with diverse and sometimes contradictory results. The conclusion is that the direct implementation through project management is perceived as an *emergent strategic function.* The field continues to grow and adapt, and can be said to have come a long way from its origins in the 1950s, as academics and practitioners add new insight to the already wide range of practice options (PMI 2004). These arguments lead to the inference that there

should be direct implementations in urgent strategic projects. Furthermore, by reflecting the arguments of the previous section regarding program management, there should sometimes be an overlap of characteristics using a mixture of the two processes.

The normative route through portfolio, program and project management

The previous sections of literature review outlined the criticality of portfolio and program management routes. It also showed the possible contribution of portfolio management and its relationship with program and project management.

The route of portfolio, program and project management is defined as the performance feedback from the last two elements back to the portfolio process. This is to determine a criterion for the actions to be applied against portfolio components, such as *"go/no go"* and project termination (PMI 2006). This route is perceived as a crucial passageway to achieve strategic projects, according to some researchers of project management (PMI 2004, 2006, 2008, Morris 2004, Milosevic 2005). If there is a direct link between organisational vision-strategic goals, this shows that portfolio management might be the first, major, crucial interface, followed by program and project management as the final stage of implementation.

The direct route of management by Projects

Many organisations have adopted Management by Projects: a new managerial approach to all ongoing operations, which are redefined, organised and perceived as projects. This approach is supported by Barnes' (2001) argument that an organisation's operations lead the development of its corporate strategy. Project-based management is directed toward organising activities to achieve the goals of scope, cost, and time and induces a temporary organisational structure as part of, or even replacing, the old organisational structure (PMI, 2009). Grant et al (2006) argued that project management has frequently been defined in contrast to operations management, which has long proven essential to success in manufacturing. Martinsuo et al's study (2006), of 111 companies from a variety of industries revealed that factors such as external pressure and internal complexity are for the drivers of direct, project-based management. This is supported by Artto et al (2005) who argued that strategic goals are the part of business that relates to projects, with the purpose of achieving strategic objectives. In this case, the Management by Projects form might lead the organisation to incorporate features from the program and portfolio management. *The latter inference shows the tendency of merging the processes features.*

The differentiation between program and project management

Gray (1999) has assumed the equivalency between program and project management. According to Gray (1999), a program, project, sub-project and work package are simply

different levels in a hierarchy of project-type work activities. This approach might justify the selection of direct project management route by using some of the features of program management. The greatest difference between program and project management is that program management is geared to achieve business results to create a competitive advantage, while project management focuses on planning and executing the work required to deliver the product (Martinelli et al 2005). In a related approach, Artto (2009), in a comparative bibliometric study of 517 program and 1164 project articles published in the last 21 years in leading scientific business journals, showed that the theoretical foundations stress the difference of project and program management. However, he concludes that, "Neither shows consensus nor precise definitions of program management". Projects, in turn, have product development as the dominant theory. Figure 3.1 highlights similarities and differences between programs and projects as defined by Artto et al (2009). Complementary to the assessment of projects, when compared to programs, the former have a stronger foothold and a longer history in management literature, which is apparent in a higher number of citing articles and references.

Eleven distinctive characteristics with programs and projects

Characteristic	Distinctiveness of programs	Distinctiveness of projects
1. Themes	*Several topical and focused themes* of management science: manufacturing, quality, work and organization change, product development	*One dominant theme*: product development
2. Evolutionary pattern of themes	*Emphases of different themes change in time*. Major changes in industry and society introduce contemporary themes that programs are expected to address	*Evolution within the same thematic line of literature*, product development
3. Dominant theory bases	*Organizational theories and strategy*	*Product development*
4. Additional theory bases	*Several additional theory bases*: product development, manufacturing, quality, and industrial, economic, institutional, work and organizational change	*Organizational theories*
5. Missing theory basis	*Ignorance of original theoretical roots of program and project management*	*Ignorance of original theoretical roots of program and project management*
6. Evolutionary pattern of theory bases	*Evolution towards a balance*. Within organizational theories, evolution towards balance between alternative theories. Between dominant and additional theory bases, from organization theory focus towards more balance among themes	*Increasing focus in product development*
7. Level of analysis	*Organization and its major parts*. However, no evident focus on multi-project organizing	*Single project*
8. Object	*Change of permanent organization*	*Narrowly defined task entity or organizational entity that is temporary*. Permanent organization is taken as given, serving as an influence factor of project success
9. System	Systems thinking	No systems thinking
10. Types of innovation	*Various types of innovations that reflect an open system nature of organizations in their environments*. For example, process innovation, organizational innovation and change, infrastructure and systems innovation	Product innovation
11. Types of outcome	*Wide set of impacts*. Broader, fuzzier and more indirect and far-reaching effects with long-term implications in the future	*Concrete business results*. Direct results that contribute in a foreseeable manner to business success. Focus is on short-term outputs (project or product success)

Figure 3.1 Eleven distinctive characteristics with programs and projects. Source: Artto et al 2009

The latter argument gives the evidence of the ambiguous relationship between program and project processes. It shows the possibility of overlapping and combining their features (figure 3.1). Consequently, such integration might be deliberate in an emergent strategy.

Moreover, the previous sections described the normative implementation routes' overlaps and reflections in the majority of literature. The following section suggests some alternative ways of projects implementation in the literature.

The implementation route through other mechanisms and practices

The following sections will illustrate variations of project management.

Alternative forms of linking strategy and projects

Maylor (2001) referred to the paradox between the organisational desirability of linking strategy and projects, and the actions that organisations take to achieve them. Similarly, Longman et al (2004) observe that some projects are initiated outside the normal context and justified by fuzzy or mysterious criteria. Furthermore, Anderson et al (2003) found that strategies do not always address all the necessary elements and *were not always derived from a project mode*. In a broad sense, Suprateek (2000) stated that a rigid implementation refers to all that must be done by a specific direction so that it *can harness the capabilities* of a particular project. According to the previous statements, there can be an intention to implement strategy in *alternative ways* beyond rational - normative project management context processes.

Variations in the project management process

The differentiation of strategy implementation route can be observed through Anderson's et al (2002) study where several interviewees commented that strategies were not always derived in a project mode. In a study by Thomas et al (2002), none of the participants initially described project management as a philosophy and none referred to specific project management methodologies. Finally, there was the tendency, in smaller organisations, to overcome even the operating plans element process. In the interim report of EPSRC Network (2004-2006), Winter et al (2006) stated that the classical PM lifecycle model is a limited description of the actual reality. He contended that "New ways of thinking about the complexity of projects are needed for both research and practice".

The different approaches to implementation

Many researchers have stressed the necessity of linking projects and their management to strategy, and have proposed different models describing the integration of the management

processes at project and multi-project levels with the organisational strategy management. Hamel et al (1996) suggested 'a strategic architecture' through which an organisation translates its core competencies into competitive success. Most of those models and frameworks were theoretical constructions to solve or present managerial problems with multiple projects. Figure 3.2 shows the ways of framing the implementation of a strategic project (Suprateek 2000). This model depicts organisations as comprising four interacting components: task, technology, people and structure.

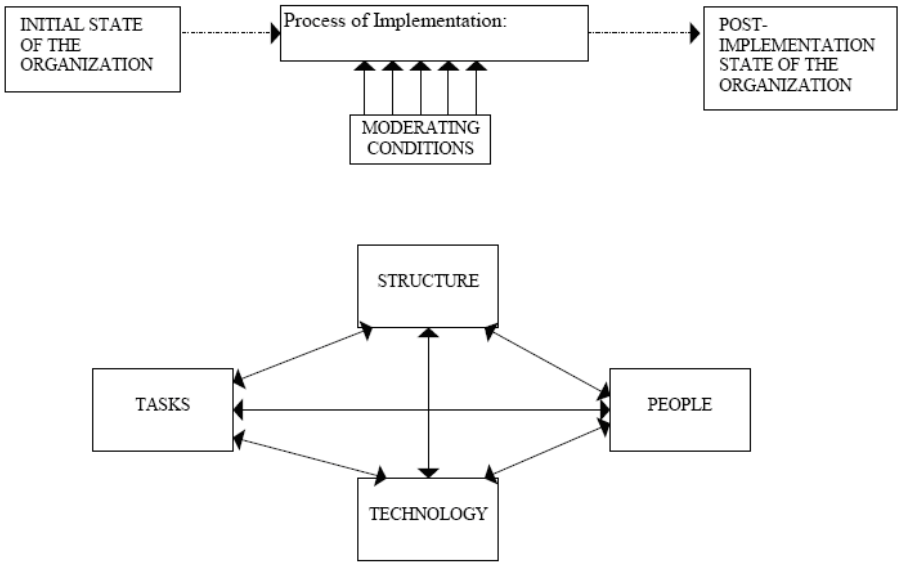

Figure 3.2 Different ways of framing implementation: The socio-technical view of implementation. Source: Suprateek 2000

The process view in project implementation

The process view of implementation was influenced by the socio-technical school of thought (Bostrom et al 1977, Markus, 1983, Robey 1987). This "interactionist" approach is an alternative route of project implementation in some organisations (see Figure 3.2). From this perspective, the organisation consists of interacting components: people, tasks, technology, and structure (Leavitt 1965). The "process view" sees implementation as a diffusion of innovation. It changes the institutionalised way of working within an organisation (Ginzberg, 1978, Galbraith, 1979). The latter argument reveals the possibility of differentiated implementation of projects, and not using the institutional (rational - normative) project management processes with discipline.

Goal-directed implementation

An alternative way of organizing and managing projects comes from Metaxiotis et al (2005) who proposed Goal Directed Project Management. This implies a planning process that involves both the upper management and the implementers of the projects so that a common understanding of a task and the objectives is reached, and ownership of plans is gained by project managers. The method of organising projects requires a thorough discussion of what the people involved in the project will do. Finally, control includes controlling milestones and activities (Sproull et al 1986). This model might resembles the rational PMI's (2000- 2006) project management process, but gives the impression of a differentiated implementation approach.

The Analytic Hierarchy Process as alternative implementation process

Longman et al (2004) propose the Analytic Hierarchy Process" methodology, in which a portfolio controls the measurements of organisational ability to meet project technical requirements, and technical core competency is used to perform the project. This predisposes the use of a differentiated control of project's progress rather than the normative PMI's (2000- 2006) project management discipline.

So far, there are many ways to tailor project management elements to support the implementation of a business strategy. According to Merwe (2002), many organisational forms have different adaptations to increase the speed of strategy implementation (means through projects). Skivington et al (1991) identify a range of institutional structures: a line, line and staff, functionalised, a matrix, multidimensional matrix, linking-pin, Strategic Business Units, joint venture, laissez-faire, structures, industrial democracy and virtual structure. Chebat (1999) considered two aspects of implementation: structural (organisational structure and control mechanisms) and interpersonal (strategic consensus)(Bourgeois 1980) and autonomous strategic behaviours.

Previous sections described the features, benefits and characteristics of alternative implementation routes, in addition to their possible influence on the implementation of strategic projects. The following section presents the criteria and the organisational influence factors that might affect managers' decisions of implementation routes.

3.3 Definition of the Key Decision Factors

The literature review and research into practice, performed in documents 2 to 4 revealed a range of influence factors (F1-F29), which affect the project management context.

The next step is the investigation and identification of those factors which affect the PM implementation route selection decision. Yet, throughout the literature, no direct reference to route selection factors was detected. In order to understand the phenomenon of influence on the implementation routes selection, the key decision factors were divided into two groups:

Group 1: The Key Decision Criteria which is related to the benefits of the PMC processes, and,

Group 2: The Organisational Influence Factors which is related to the slightly chaotic nature of organisations and business life.

The findings of each literature stream will be depicted in tables at the end of this chapter. The investigation model, used in literature review, is illustrated in figure 3.3.

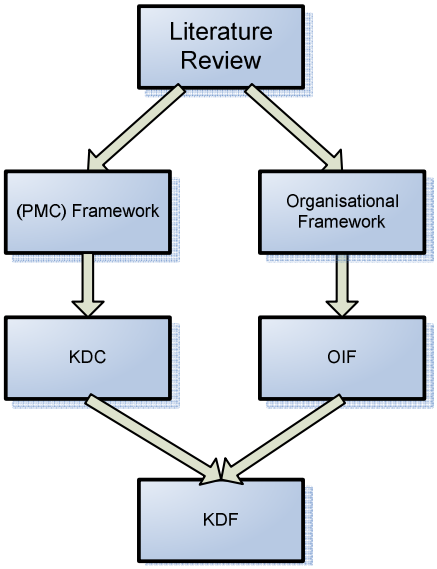

Figure 3.3 The literature review investigation model for identification of the KDF

What are influence factors, and how are they perceived in this study?

A factor is an element that contributes causally to a result: "a number of factors determined the outcome." It is anything that actively contributes to an accomplishment, result, or process. In this case they are phenomena relevant to making a decision about an implementation route selection.

What are the groups of factors?

OIF are factors that positively or negatively affect the implementation of strategic projects and challenge managers' decisions of how to deal with them. Simultaneously, these decisions

are influenced by KDC, which drives the selection of an implementation route that would fulfil the previous requirement.

KDC are those PMC processes' (potential) benefits and features that managers take into consideration to determine which implementation route would be the most appropriate and to deal with the OIF.

Some researchers have tried to find out how managers choose a route of implementation. Some claim that managerial choices should be influenced by efficiency, cost factors, quality, delivery time, or the desire to minimise human labor relations problems. Others contend that the selection should be influenced by external organisational factors. Thus, researchers disagree over the extent to which the implementation of strategic projects needs to consider different factors. The question here is what organisations would do to ensure the successful implementation of the project by choosing the most appropriate implementation route as opposed to what they appear able to do afterwards.

In a similar vein of analysis, it is assumed that the managers' objective is the successful implementation of an emergent strategic project. Therefore, the previous relationship (OIF + KDC) is defined as the "Key Decision Factors" which influence the implementation route selection process. (This means, that the OIF are related to KDC which determine the implementation route to cover managers' expectations to deal with the current influences of the organisational factor).

The researcher's assumption is that in different organisational situations or circumstances, the KDF might be different every time. This is because of the chaotic nature of organisations and business life. Another assumption is that while there could be several additional KDC and OIF, the current lists have been developed in this study as indicative and representative and they do not claim to be definitive. The factors are perceived as a fairly good sample, because they are the best known and most acceptable factors/criteria in the literature.

Group1: The Key Decision Criteria of implementation route selection

The literature provides the objectives of strategic projects implementation. In addition, several papers discuss the pre-conditions that managers should take into account when adopting a project management route. During the implementation phase of a strategic project, the strategy formulation process not only determines the chosen strategic change but also explicitly addresses the question of how it is to be implemented. That means that critical elements are identified and a complete set of actions is specified and assigned without crucial

interfaces being overlooked. The Key Decision Criteria found in literature are described and discussed below.

1. Avoidance of implementation issues and problems

This criterion was expressed in several sources. Most of the project management issues that influence a project arise from risk, and risk arises from uncertainty. The ability to adapt to internal procedures is essential in ensuring that the key issues of cost, time, quality and above all, client satisfaction, can be realised. McElroy (1996) argued that implementation should link strategy and projects, thereby, increasing the chances of successful implementation. Hussey (1998) considered the avoidance of problems through a clear expansion of project goals towards wider business strategic goals. Therefore, the route selected ensures the implementation and anticipate any problems.

2. Increase the speed of strategic projects implementation.

Today, lifecycle management for service sector organizations is increasingly complex given the required speed to market and extended supply networks. Meanwhile, in documents 3 and 4, organisational project management implementation was found to be concentrated on the ad-hoc response to deliver projects faster. Therefore, the selected route is required to "speed-up the implementation in case of an emergent strategy" (Minztberg 1994). Pellegrinelli (1997) proposed considering the appropriate strategic perspectives and the possibility of using direct implementation processes. In this case, Pellegrinelli (1997) claimed that using a route with less bureaucracy and without delays could assist to the faster implementation of an urgent project. Therefore, the route selected should ensure fast implementation.

3. Have effective budget utilization

Global competition, pressure to increase market share, reduce cost, and improve profits, the pursuit of better products and faster services through the use of high technology solutions, are just a few of the forces that are causing organisations to improve time-to-market, cost-to-market, and quality-to-market. The criterion of effective budget utilisation is discussed in the project management literature. Several studies have focused on this aspect, including Morris et al (2004), PMI (2004, 2005, 2006), Grundy (2000), Kerzner (2003) and Artto (2005). The main concepts in every line item of budget are opportunities to reduce costs and increase the strategic value of strategic projects. Many other authors noted it as the main benefit of a project management process. Evaristo et al (1999) and Gray (1997) argued that the management of multiple projects should optimise and integrate costs. Organisations have a business need to understand how their resources are being used to evaluate their projects' efficiency. This enables the organisation to forecast future requirements prior to project

implementation and to base decisions on what is readily available, accurate, concise and useful.

4. Have coherent communication between projects

Communication between projects a value of implementation although it would be more accurate to say that effective communication is what implementation deems critical to projects' success. In this case, the central requirement is to link interdependent projects by possessing a common set of objectives to achieve the strategic goals. The implementation route should enable communication among people who are working on different projects. The need to choose a route is to have several communication options available. From a different perspective, Lycett et al (2004) describe it as a fundamental focus of an organisation. PMI (2006) suggests the focus and escalation of any projects' communication issues. Team dynamics might change throughout projects, so the communication strategy that worked well yesterday may not work well today. In short, the route chosen must support coherent communication between projects during their implementation.

5. Effective knowledge transfer

The integration and transfer of tacit and explicit knowledge can be essential to an endeavour's success (Leonard et al 1998). As a result, many organisations are paying more attention to the active management of such knowledge across the projects (Cormican et al 2003). This expectation concerns all project management processes' capability to assist the formal knowledge management and transfer by which documents, data, or other types of resources are captured and stored in formats and media that allows for easy retrieval. Tacit knowledge is the antithesis of explicit knowledge, in that it is not easily codified and transferred by more conventional mechanisms such as documents, blueprints, and procedures, (Kreiner 2002). Tacit knowledge is derived from personal experience; it is subjective and difficult to formalize (Nonaka et al 2000). Haughey (2008), PMI (2004, 2005, 2006), but several other authors in their studies indicated that one important action of projects implementation should be the effective communication of key project data and tacit knowledge. Lycett et al (2004) approached this function as an expectation and stated that the goal of a process to have efficient and effective projects implementation.

6. Enable monitoring the implementation process by senior management.

The requirement is to enable senior management to monitor, direct and control the implementation process. Dinsmore et al (2005, 2006) identified a set of processes of an

implementation route, and one of the most important was to monitor projects' progress to meet the strategic goals of an organisation. The main requirement from a route chosen is the visibility of projects' implementation progress by senior management. According to Lycett et al (2004), this criterion is necessary to for an efficient and effective implementation route.

7. Effective resources utilisation and capacity planning

A typical situation entails a limited pool of resources, which is applied to the management of several projects with people moving back and forth among projects (Knutson 2001, Englund 1999). Connecting the strategic goals with the allocation of resources is important (Ward et al 2009). Furthermore, PMI (2004, 2006), (AMR 2009), Haughey (2008) and Morris et al (2004) define the requirements of effective assessment, examination, use and manage resource constraints and capacity planning. The goal of capacity planning is to provide satisfactory and cost-effective service. The expectation of a route is to categorise the project work done and to quantify expectations for how that work gets done.

8. Effective forecasting of capacity and budgets

Since the budget is a road map leading to a project's strategic target, it becomes an important criterion. According to PMI (2004, 2005, 2006) a good project plan begins with a good forecast, which leads to a good budget. It is a quantification of the activities the project must perform to arrive at its destination. PMI (2004, 2005, 2006), Haughey (2008) and many other authors indicates that the key activities of an implementation route should be the effective forecasting of projects' capacity and budgets. Finally, using forecasts of future projects requirements and implement the required changes to ensure that sufficient sources capacity will be available even as circumstances change.

9. Effective links between processes

Business processes use information to tailor or complete their activities. That information may come from external sources, from customers, from internal organisational units and may even be the product of other processes. A link indicates that information and/or the output of a process are linked to the implementation route processes. The topic is mentioned in project management literature and is related to knowledge transfer. Milosevic et al (2007) showed the need to align functional objectives with business objectives. The Effective links between processes was suggested that should be maintained continuously during the implementation route chosen.

10. Effective link projects with interdependencies

There are many references in the literature regarding interdependences between projects. For example, program management is defined as the management of a series of related projects designed to accomplish broad goals, (PMI 2006). In other words, project teams, targeted customers, and stakeholders are interdependent. Lycett et al (2004) suggested that the processes and organisation must depend on the degree to which the projects are interrelated. Another example, McElroy (1996) considered the dominant linkages and interdependencies between projects, to provide a mechanism for classification and prioritisation of projects and allow projects to be assimilated on an incremental basis. For major, strategic implementation programs there may be so many interdependencies between project clusters (Grundy 1997). The expectation is that the route selected should support interdependencies between projects highlighting the challenges created by those interdependencies.

11. Effective organisational communication in relation with strategic projects implementation

One suggestion from the strategy and project management literature is that an effective project implementation requires continuous and intensive contact between functional and project groups within the organisation. The role of effective organisational communication in relation with strategic projects implementation expressed by PMI (2004, 2006), AMR (2009) and of course by many others. Haughey (2008) indicated that a key activity of an implementation route is the communication of project's progress. Ringuest et al (1999) argued that the portfolio decision process is characterised by strategic changes in information. An alternative, and perhaps more suitable, identification by Lycett et al (2004) is the requirement of the link between the strategic directions and information of an organisation. The effectiveness in communication in relation to strategic projects implementation should be an important expectation and criteria in a route selection decision.

12. Alignment with organisational strategy

The modern theory of project management supports the organisational requirement of linking first strategy with portfolio management as a success factor (Englund 2000, Littler et al 2000, Knutson et al 2001, Miller 2002, Morris et al 2004, PMI 2004, 2006, Scholey 2005, Srivannaboon 2006, Milosevic et al 2006). Linking strategy with an implementation route is known to be critical, particularly when company strategy involves both a high degree of innovation and a high rate of growth (Noble 1999, Lorange 1998, Longman et al 2004, Srivannaboon et al 2005). Strategy has been a distinguishing factor, both in citation and keyword analysis (Arto et al 2009). Strategy sources seemed to be dominant in all program key source clusters.

The use of a portfolio management route is a crucial interface because of the translation of strategic goals to projects, according to Englund et al (1999), Kerzner (2003), Artto (2005), Cismil (2006), Grundy (2001), Morris (2004, 2005), Chin (2004), Milosevic (2005), Shenhar (1999), all of whom who argued for the translation of vision, mission and strategic goals into reality by using portfolio management.

13. Establishment of a link with other areas and processes

Several inter-linking management practices are identified in literature. Chaharbaghi et al (1998) presented such links as instrumental to the process of alignment. It is presented as the process of setting strategy and prioritising projects (Englund et al 1999). Ringuest and Graves (1999) argued that the portfolio decision process is characterised by multiple functional decision makers. The latter approach reveals that the decisions of projects implementation are taken by multiple functional people from different functional areas of the organisation.

14. Effective centralised management - focus on the big picture

In agreement with other authors, Artto et al (2002) defined the requirement of centralised management, as set of projects that are managed in a coordinated way, to deliver benefits, which would not be possible if the projects were managed independently. From a wider view, it is a collection of projects to be managed concurrently under a single management umbrella in which each project may be related to, or independent of, the others. PMI (2004, 2006) has offered a definition of portfolio management route as a governance method, using a centralised management of the collection of active grouped projects, programs, sub-portfolios and other work. This affects business strategy by facilitating effective management to meet strategic objectives at a specific time. As Duggal (2009) argued, the focus is on the big picture. The effective centralised management and control seems to be a dynamic criterion in implementation route decision.

15. Evaluation, categorisation and prioritisation of strategic projects

This factor is the requirement to balance and manage effectively, through evaluation, categorisation and prioritisation**,** a collection of strategic projects or programs, whether related or not (Crawford et al 2001, 2003, PMI 2004). It means that during the process of prioritisation, each project should be assessed on its potential to achieve a specific strategic goal. In other words, it means the reasonable selection of an optimum combination of projects (PMCC 2001) with strategic forecasting (Aquino et al 2008). Shenar (2004) proposed the classification framework that creates the *strategic portfolio* (according to Datz 2003), based on strategic impact. Haughey (2008) indicate it as a key activity and as a critical step (Crawford et al 2006), of implementation process within organisational investment portfolio

(Tikkanenet al 2006) by choosing the right projects (Lycett et al 2004). New strategic projects are evaluated, selected and prioritised, existing projects might be accelerated, killed or de-prioritised and resources should allocated and reallocated to the active projects (Ward et al 2009). Since there are so many types of projects in multiple environments, they should be classified by using different management approaches, (Shenhar et al 2000), giving flexibility in strategy formation, (Dietrich et al 2005).

16. Continuous evaluation of projects, acceleration of projects, revision, kill or de-prioritisation

Benko et al (2003) stated that in today's unpredictable world, is evident the continuous activity of maintenance of strategic alignment. As priorities change, more information becomes available and as the art of the possible continues to evolve, organisations come under increasing pressure to recalibrate their objectives, and re-evaluate their effectiveness. Maintaining alignment requires regular and continuous evaluation of the strategic projects. On the other hand, projects appear almost randomly and do not seem to be linked to a coherent strategy. As a result, people feel they are working at cross-purposes, on too many unneeded projects, and on too many projects. Cooper et al (1997) built on Markowitz's (1952) conception, considered the requirement of dynamic decision-making process whereby a list of active projects in the business is constantly updated and revised. The number of redundant projects must be reduced while making it easier to kill projects that are no longer necessary (AMR 2009). The continuous evaluations of projects, acceleration of projects, revision, kill or de-prioritisation are features and functions of the processes of project management context and this expected to be supported from the implementation route selected.

17. and 18. Identification of cost and benefits and reflection, representation of investments

According to PMI (2006) the implementation route selected should also represent and report the investments that are made or planned, which are aligned with business strategic goals and objectives.

Investment decisions are at the core of organisational strategy. Economic growth and welfare depends on productive capital, infrastructure, human capital, knowledge, total factor productivity and the quality of projects delivered. All of these development ingredients imply - to some extent - taking the hard decision to sink economic resources now, in the hope of future benefits, betting on the distant and uncertain future horizon. The economic returns from investing in strategic projects required to be calculated every day. Gradually, a consensus should be achieved by calculating and comparing costs and benefits of investment through projects progress appraisal. A holistic perspective of the route decision is to address the entire

lifecycle, from the conception to the realization of the investment benefits (Duggal 2009). Morris et al (2004) noted that the implementation process chosen should focus and support that appraisal necessity.

19. Minimize the risk and avoidance of project failure

Risk management is identified as factors in the current project management literature. PMI (2004, 2006, 2008) describes the intent to facilitate the mitigation of risks in a set of projects. The implementation route should offer a risk assessment and study the probability that a project will achieve a satisfactory performance. Accordingly, it becomes apparent that risk, but not uncertainty, is subject to empirical measurement, and can be analysed and possibly managed. In some circumstances there is just uncertainty, but in other cases this can be transformed into 'risk'. Another example is that portfolio management as a route process theoretically was first developed within the financial investments industry as a mechanism for reducing risk (Markowitz, 1952). Finally, McElroy (1996) stated that the risks should be identified and managed and all staff become committed through involvement. The implementation route should put forward the risk management functions for the avoidance of possible failures.

20. Minimize uncertainty of projects implementation

Traditionally, a distinction between risk and uncertainty is made. This criterion serves as an enabler for achieving business strategies within a systematic approach to organize, plan, implement and minimize uncertainty of projects while increase efficiency and effectiveness of implementation (Blomquist et al 2006). Englund et al (1999) pointed to the requirement to interrelate smaller projects that contribute to the same organisational goal to avoid uncertainty between them. This is the framework for grouping existing projects or defining new projects, and for focusing all the activities required to achieve a set of major strategic benefits (Pellegrinelli 1997, Ferns 1991).

21. Avoidance of project cost overruns

An example of the avoidance of project cost overruns is revealed in the latest empirical study of Dietrich et al (2005). There a 10% reduction in successful project cost overruns was found by using appropriate implementation controls. Another example is the survey, by AMR Research (2009), which found that organisations following portfolio management routes are saving 2% - 5% annually in their budgets. (AMR Research, Inc. was *an independent research firm*, which focused on the global supply chain and its supporting technologies. The validity of AMR Research studies were based on its professional staff which made every reasonable

effort to present the most reliable information available). Similarly, UC Berkley's studies found a 15% - 21% improvement in project execution and delivery costs.

22. Avoidance of project time overruns

The avoidance of project time overruns is a criterion expressed almost in the whole literature of project management. Dietrich et al's (2005) study found a 10% reduction of project throughput times by using portfolio management route. It is evident and seems rational that an implementation route should ensure the control of projects' cost.

23. Avoidance of project quality failures

The same is evident for the criterion of avoidance of project quality failures. It is expressed as a requirement by almost the whole literature in project management. For, example PMI (2006) describes the requirement to bring about the escalation of issues in projects, such as quality and scope changes.

24. Avoidance of low-value projects

In this case the prerequisite is to assess the strategic value of projects. For example some of the benefits of using the portfolio management route for reduction of low-value projects, were identified by Forrester research (2009) and Dietrich et al's (2005) empirical survey findings . In particular, Dietrich et al's (2005) study revealed a 10% reduction in the number of low-value projects by using the portfolio management implementation route.

25. Reduction in administrative time (status reporting and facilitation)

This measure has to do with reduction of administrative time spent in project management processes. This can be achieved by using the right processes in the implementation route. the empirical study by Dietrich et al (2005) again, revealed a 25% reduction in administrative time (status reporting and facilitation) by using portfolio management route.

26. Maximization of value of investments

That factor means to focus on the strategic and business objectives, benefits and outcomes as well as systemic issues that prevent projects from achieving their objectives (Duggal 2009). the latest studies in this field (AMR 2009) revealed that the benefit of a route is to maximize the value of investments while minimizing the risks.

27. Manage a series of related projects designed to accomplish broad goals

PMI (2006), Milosevic et al (2007), Martinelli et al (2005) and Ferns (1991), expressed the requirement of managing related projects in a coordinated way to obtain benefits and control

that is not available from managing them individually. This reminds us of the previous expressed need of centralised, coordinated management to achieve the strategic objectives (Morris et al 2005). This aligns with reality when many programs emerge as a group of pre-existing projects which are managed quite independently (Gray 1997). The strategic projects grouping to achieve a holistic mission is illustrated by PMI (2004) and Thiry (2004). This means it is necessary to have the capability to combine both deliberate and emergent or unplanned strategies (Evaristo et al 1999, Gray 1997). Haughey (2008) agrees with Dinsmore et al that portfolio management process is a good control mechanism if things are done the right way.

28. Efficiency and effectiveness of implementation –integration of schedules

This factor has to do with the collection of interrelated projects that contribute to strategic goals and are typically executed over an extended period of time (Wideman, 1995, 2005, OGC 2003, 2007). The vision is to gain the maximum benefit from integrating its project management activities (Morris et al 2005). Pellegrinelli et al (1994, 1997) and Partington (2005) identifies that through grouping the related projects' schedules that, together, could achieve a common purpose in support of the strategic aims of the business. The management of multiple projects is intended to optimise and integrate schedules and efforts (Evaristo et al 1999, Gray 1997). Gray (1997), Evaristo et al (1999), Levene (1996), Lycett et al (2004) and Thiry (2002), outline similar needs.

29. Resolve inconsistencies and disconnects across projects

This is mandatory, from an implementation route perspective, to provide an integrated approach to resolve inconsistencies across projects and organisational silos that cannot be necessarily resolved at the project level (Duggal 2009). PMI (2009) mention that, depending on how large a project is, it can be divided into subprojects, which then can be divided into even smaller subprojects, if required, for better control and faster implementation. Sometimes, multiple projects are treated separately from programs since their respective structures have weak relations with each other, or are independent (PMCC 2001).

30. Effective management of multiple stakeholders

This factor is to select an implementation route that could support an effective management of multiple projects' stakeholders. Duggal 2009 perceived it as an important aspect. Similarly, Lycett et al (2004) considered it as a fundamental standard.

31. Achieve customers' satisfaction

In the literature, achieving customer satisfaction is defined as an important aspect and could be perceived as decisive factor of route selection. This is to satisfy customer's needs, to deliver the project faster and with the appropriate quality of deliverables. It is worth noting that there are plenty of similar references in project management literature. Several studies have focused on aspects regarding customers' satisfaction with projects deliverables (Morris et al 2004, PMI 2004, 2005, 2006, Srivannaboon 2006, Milosevic et al 2006, Duggal 2009).

32. Enable senior management to direct and control the implementation process.

This necessity is expressed by Chin's (2004) view that upper management's direct involvement in managing project change might be in approving an unexpected course change before implementation, or encouraging the team to "*try something new*". The principal observations that stem from this review are the key role that upper management plays in strategy implementation. Under the light of the findings discussed above, this may indicate that Senior Management and Functional (Line) Management might also affect the decision of the implementation route. After considering this, one might superficially conclude that route selection by enabling senior management, is the key of organisational vision to projects translation process.

33. Efficiency, simplicity, flexibility and scalability in implementation

Haughey's (2009) emphasis is on keeping project management simple and not getting bogged down in large, unwieldy processes. According to this assumption, large project processes can kill smaller projects. It could also be the criteria of selecting a route based on the simplicity of the implementation process. For example Milosevic et al (2007), considered portfolio efficiency in its indirect relation to project management process efficiency. Lycett et al (2004) argued that the characteristics of the constituent projects should as simple as to be aligned with the nature of the wider organisation vision. Likewise, this could be a decisive factor of an implementation route selection.

34. Utilisation of appropriate methods models and tools at project and multi-project levels

The prerequisite is the utilisation of appropriate methods models and tools at project and multi-project levels. Such requirement for enabling an appropriate planning, scheduling, executing, monitoring and control of the selected projects is expressed by Morris et al (2005). On the other hand, Blomquist et al (2006) stated that the PMC routes should be perceived as a strategic tool for charting the project and linking it to the ongoing work of an organisation.

Those were the key decision criteria found from existing project management literature. Again, those criteria are not exhaustive. They represent the possible factors expressed as decisive criteria of choosing an implementation route. In the next section the organisational influence factors are reasonably presented based on the same logic and perception.

Group2: The organisational influence factors (OIF) of implementation route selection

During investigation in the strategy literature, many organisational factors were found which influence the degree of success in strategy implementation (see for example Heide et al 2002 Galbraith et al 1986, Olsen et al 1992, Pearce 1982, Stock et al 2001, Waldersee et al 1996, Thomson et al 1998, Whittington et al 2006). In addition, Martinsuo et al (2006) referred to two separate dependent variables. Those are *realisation of strategy* and *perceived efficiency*. Both factors have a strong association with the implementation processes framework. On the other hand, only a few studies have tried to identify directly the factors that affect the decision of an implementation route (Wernham 1985, Hussey 1998, Heide et al 2002, Hrebiniak 2006). In line with the previous arguments, the organisational influence factors found in literature, and their possible influences in implementation routes decision process will be evaluated in the following paragraphs. This section will identify the role and the influence those factors apply on route selection process.

1. The external and internal influence factors

It is evident from the literature that many external and internal factors, affect influence strategic decisions and, consequently, might affect the decision of an implementation route. For example, as external factors are perceived the competitive conditions, opportunities and threads (Nielsen 1983). From another point of view, societal, political, regulatory and citizenship factors might limit the strategic actions a company can, or should, take. However, projects unfold against political, industry, and other factors that might impact the decisions made within the implementation route of a project.

Charvat (2003), Hajime (1991), Blomquist et al (2006) and Bryson et al (1993) argued that organisational structure plays a key role in the manner in which projects are identified, ramped-up, executed, and managed. The relative internal factors are company resource strengths or weaknesses, competitive capabilities, ethical principles, business philosophy, shared values and company culture (Hölttä-Otto et al 2006, Bourne et al 2006, McCray et al 2002). Verzuh (2005) presented four basic components that influence projects: processes, people, technology, and organisation structure. Similarly, Pinto et al (1990) and Cicmil (1997, 2006) considered additional external factors, such as politics, community views, economic and geophysical conditions and the availability of financing. There could be many other factors that might influence the route selection decision. The latter depends on the

organisational situations but also on the slightly chaotic nature of organisations and business life.

2. Organisational strategy

The relationship between organisational strategy and *implementation process* is evident in the majority of the literature. Strategy is an idea of how a company could reach its goals. It is the driving force behind success (Allio 2005, Argyris 1989, Mintzberg (1994), Avisona et al (2004), Chaharbaghi (1998) Pietersen (2002) and direction of a business (Porter 1980, 1985, 1987, 1991, 1998), (Gottschalk 1999). For others, strategy implies a perspective of doing business (DeWoot et al 1978, Bonoma et al 1988, Hamel et al 1989, Bednall et al 2005, Bantel 1997, Epstein et al 1998 and Chan et al 2005). This includes the direction and scope of an organisation over the long term (Johnson et al 2005). The decisive influence of organisational strategy should be noted on the selection of an implementation route.

3. The type of organisation

Charvat (2003), Hajime's (1991) argued that organisational type plays a key role in the manner in which projects are identified, ramped-up, executed, and brought to conclusion. Certain structures, such as a matrix structure (which require project managers to work across functional silos), are more complex (Bryson et al 1993). In addition, the environmental complexity of the organisational type is important (Blomquist et al 2006). It is evident from the previous references, that this factor might influence the way the decisions for an implementation route are taken.

4. The role of direct and indirect strategic projects

Dietrich (2005) stated that direct and indirect strategic projects deliver business strategy. Each project is linked with business strategy, according to Benko et al (2003) and Crawford et al (2006). Direct and indirect strategic projects are strategic or tactical. Strategic implementation projects need to be refined and guided (Barton et al 1988 and Bamford et al 2003) much more sensitively towards their target than more traditional, "fixed" projects (Grundy 1997). In contrast, some non-strategic projects have no direct link to delivering business strategy. Bednall et al (2005) found that non strategic projects (tactical projects) are more likely to be misused than strategic projects. Those are perceived as sub-projects of strategic projects. Such projects establish an indirect link with business strategy (Benson et al 2004). Consequently, the implementation route decisions might be influenced by the strategic type of projects (not in favor of tactical projects).

5. The use of appropriate mix of tools, techniques and models

Organisational strategy implementation is correlated with the use of tools, techniques and models. Kaplan and Norton (1996), however, stressed the need for a strategic system tool that maintains balance and control within the strategy implementation process. Perhaps, as this is also a mechanism for strategy implementation (Simons 1995). The later arguments show that the tools, techniques that an implementation route offers, might influence the route selection decisions. In line with previous arguments, Grundy (1997) stated that strategic projects often call for a different mix of tools. Hamel et al (1996) considered the implementation process as an active framework of strategic projects supported by appropriate tools. Therefore, a number of tools and techniques required from strategic management (Dess 1987), value management (Fleming et al 1998 and Raby 2000) and organisational change (Boecker 1989, Klein 1996 and Luecke 2003) could drive the selection of implementation route.

6. The organisational competitive advantage

The literature has emphasised competitive advantage as a strategic goal for most organisations (Egelhoff 1993, Porter 1980,1985,1987,1998, Hamel et al 1996, Olavson 1999, Liao et al 2000 and Chemawat 2002). Subsequently, several papers discuss the pre-conditions that organisations should take into account when adopting such strategic approaches (Hamel 1996). Strategic projects might face crises triggered by changes in the competitive market (Hauc et al 2000), (PMCC 2001). At the same time, the project management literature does not explain how competitive advantage affects implementation route selection. Business management literature has historically paid little attention to which technique should be used to achieve a competitive advantage. The paradox is the increasing recognition of diversity in the literature. Martinelli et al (2005), Hauc et al (2000) and Morris's (2004) identified the roles and differences between program and project management on achieving business results to create a competitive advantage. In light of these findings, the competitive advantage factor might be important in the route selection decision.

7. Emergent strategy

Strategic goals are fluid and the means of achieving these goals can change in new and, sometimes, surprising ways. Mintzberg (1994), who perceives it is a key factor, gives a similar definition of emergent strategy. Similarly, Morris et al (2004) stated that emergent strategy could influence intended strategy through the strategic management process. Hill et al (2001) likewise identified influence from the emergent strategy as the cause of the liquidity in strategic projects. On the other hand, Hrebiniak (2006) defined "the speed in strategic projects implementation" as important. Moreover, Hammonds (2001) stated that different strategies are managed in different ways. According to Lorange (1998), strategic planning has

shifted from supply- to demand-driven so it could demand a faster implementation of strategic projects without careful planning. The latter is reflected in Kaplan's et al (2001) argument that organisation should apply the translation of strategy to operational terms to achieve strategic plans rapidly and effectively. Finally, Twiss (1987) put the use of portfolio management processes as a subjective question, pointing out the importance of emergent projects. Those arguments imply an influence in route selection or a change in the direction of implementation. Emergent strategy factor will be discussed in the next section.

8. Operating planning

Olavson (1999) commented there is value not only in predicting the future, but in making better decisions today and planning their execution. The organisational strategic vision is the organisation's mission, which is generally interpreted, in management theories, as the concept to show the rationale for business direction (Grinyer et al 1978, Whitney et al 1983, Sandy 1991, Simkin 1996, Noy 1998, Gaddie 2003 and Wilson 2003, Boar 2001). The key element, however, in operating planning processes (identified by Ward J, et al 2002 and Milosevic et al 2007) is to have a clear picture of business or organisation objectives. McAdam et al (2002) stated that operational planning is affected by various factors. In turn, the operational planning could indirectly influence the implementation route selection process. Martinsuo et al (2006), Hrebiniak (2006) and Schaffer (1988) stated that the interdependency and link of operating plans are on two critical points: the interaction between implementation and planning as well as the simultaneous view of planning and implementing. This relationship might affect the implementation route selection. Along the same lines, Nutt (1983) supports that implementation prospects improve when the strategy planning process is linked to implementation and when an implementation approach is tailored to the internal environment of an organisation. This argument clearly reveals the influence of operating planning processes on implementation route selection-decisions.

9. Organisational complexity

The world in which organisations operate today is becoming more complex (Getto et al 1999, Jaafari 2003, Cooper et al 2004 and Helm et al 2005). Mintzberg et al (1998) stated that strategy making is an immensely complex process involving the most sophisticated, subtle and, at times, subconscious human cognitive and social processes. However, when the direction of change is too uncertain, it creates complexity in strategic decisions and prevents projects from being planned effectively. The latter situation might affect the route selection decisions. For example, organisations' environmental complexity is directly related to the use of program and portfolio management practices (Blomquist et al 2006). Both projects and programs may be big or small, complicated or simple and may have high or low risk,

however, complexity is always a factor (Berry 1998). According to Platje et al (1993), Reiss (1996) and Gray et al (1999), excessive bureaucracy and control tend to create inflexibility and bureaucratic overhead. Furthermore, Thomson (1998) distinguished the complexity of small and large-scale organisations. In small companies, the strategy is owner-managed and comes from the owner's experiences, personal observations and assessments. Large companies, however, tend to develop their strategic plans more formally and in greater detail. The later facts might influence the implementation route decisions.

10. The confusion between PMC framework processes

There is much confusion between program management and portfolio management in many organisations and in the literature, according to Milosevic et al (2007), Lycett et al (2004), Duggal (2009), Thiry, (2004) and Partington (2005). The terms "program" and "program management" are often used in different ways. For example, some organisations define a program based on size alone, or as a combination of projects. In a similar manner, Aubry et al (2007) argued that there is confusion in the literature stemming from a semantic gap between the meanings given to the concepts of program and project portfolio.The two erroneous assumptions are that project management and program management are equivalent and that a single standard approach to program management is universally applicable. It is also related to the identification of processes responsible for this function and whether they are program or portfolio processes. Based on previous arguments, the confusion between project management context framework processes might affect the choice of implementation route.

11. Political factors

Political games are played in all organisations, and arguably have a functional role (Mintzberg 1985), but that they may also block change and hamper the implementation of the strategic actions. Organisational, politicised tactics deal with crucial management issues, such as outright resistance with pressures for delay or modifications. In the project management literature, the political factor is important in project formulation and in implementation route. There could be different political actors, who, from their interests and sources of power, gain insights into the political tug-of-war during project formulation and implementation. From this point of view, influences arise from the different interests of the stakeholders involved during strategy formulation and operational planning (Hambrick et al 1986). Equally important is the argument by Godfroij (1981) that those involved in a strategic project may have unequal, opposite and even incompatible interests. Rhodes (1999) acknowledged the importance of organisational politics in a project's implementation phase. This factor seems to have a great influence on route selection decisions.

12. Systems functional support

Thomson (1998) considered the need for support of a number of systems and business operations. In the same way, Mikkola (2000) considered it as a source of strategy implementation. Finch (2009) presented support-systems as an important implementation factor. This means technology and information systems, people empowerment, motivational and rewards systems are all required and influence strategic project implementation (Govindarajan 1988). In addition, Noble (1999) noted the importance of cooperation and effort among many, if not all, organisational functions as the methods to succeed at implementing strategic projects. From a different point of view, Strahle et al (1996) and Fricke et al (2000) and Hill et al (2001) argued that an organisation can increase its efficiency, to pursuit of strategic goals, by building a wide commitment and by designing structures that facilitate cooperation among functions. Of course, some parameters affect the decision of using an implementation route which is dependent on a systems functional support: cost, time, the functionality offered and the training requirements.

13. The upper management

The selection of an implementation route emphasises the role of an individual and intangible asset such as the upper management factor. Many authors have considered the continuous involvement of upper management in project management. The widely accepted view of Siciliano (2002) and Calahan (2004) that an organisation's board of upper management is responsible for setting organisational direction and strategy formulation, can increase our understanding of this factor. Frigenti et al (2002) stated that upper management influences project success and should consistently demonstrate support during implementation. The evidence and importance of involvement upper management has also been revealed by Green (1995). According to Hrebiniak et al (1982), Nutt (1990), Priem (1990) and Green (1995), the influence of upper-management teamwork on project success is vast. Noble (1999) described strategy implementation as a "trickle down" process, where senior management initiates strategies, which are then communicated through middle management to line workers. On the other hand, Thomas et al (2002), Guth et al (1986) argued that significant disconnects exist between upper management and project management. Equally critical is the argument by Thomas et al (2002) who noted that the lack of upper management support is consistently identified as a key factor in failed projects.

14. Human factor

In project management literature, much primary research has been conducted to support recommendations and several authors adapted the findings from their studies of strategy from the viewpoint of Human factor, (Gunnigle et al 1994, Gratton 1996, Belout 1998, Noble 1999,

Luoma 2000, Lynham 2002, Pietersen 2002 and Thiry 2004, Wainwright 1995 and Joia 2000). Lorange (1998) and Heide et al (2002) presented the incremental involvement of human factor by strategic planners. Such a relationship has also identified by PMI (2004, 2006, 2009), Luoma (2000), Rhodes OU T833 (1999), and Milosevic et al (2007). Moreover, Noble (1999) discussed the responsibility of the human factor in strategy process and strategic projects implementation. Luoma (2000) commented on the practical view of human factor in relation to strategy and its implementation. In addition, Mintzberg et al (1998) ties in with the previous arguments, claiming that strategy making is an immensely complex process involving the most sophisticated, subtle and, at times, subconscious human cognitive and social processes. From an alternative point of view, Knutson et al (2001) related the problems experienced on projects, during the implementation stage, to human resources. Finally, Lorange (1998) found that human resources are becoming the key resource on which to focus the implementation of an organisation's strategy. Further reflection with implementation route came from Noble (1999) who urged identifying people, who may have subversive reactions early in the implementation process. Finally, Tinnirello (2001) identified the human resource factor as one of the key dimensions of Project Management Office (PMO).

However, when defining the human factor as an important element, those authors did not mention how this factor influences the selection of an implementation route.

15. Project cost

The literature analysis showed that project cost is the most frequent reported factor. According to Oltra et al (2005) study, there are two priorities in operational strategy: cost and on-time delivery. Similarly, Oltra et al (2006) found an emphasis on cost priority. Based on an organisation's experience with estimates and asset valuations in strategy implementation, the cost factor allocation for strategic projects should be considered to have optimism bias. This should lead to the use of a prioritisation methodology with which to analyse the projects' cost. Consequently, the cost estimation process is involved in a systematic sequence of analyses that includes the development and quantification of project elements. At the same time, it is important to refer to Wideman's (2005) position that there is a lack of understanding of the whole system of project cost factor. Therefore, cost as a factor might affect the decisions of an implementation route.

16. Organisational culture

It is often pointed out in project management literature that organisational culture is important to organisational activities and performance (PMI 2006, Kerzner 2003, Bennet 1998, Bang 1988 and Palmer 2002). In essence, culture is a concept whose definition varies and is generally described as containing intangible and abstract elements. So far, Heide et al (2002)

stated that culture is the generic term for the cognitive systems and behavioural in all organisations. A company's culture can act as a kind of organisational glue, thus affecting the degree to which a strategy is implemented. At the same time, Wilson's (2003) research in the Triad countries (North America, Japan, and Europe), showed that the growing emphasis on culture as a critical ingredient in the execution of strategy was unearthed. In contrast, Stock et al (2001) posited that organisational culture affects the operation of a company in many ways. This response is consistent with Heide et al (2002) who argued that, in many companies, managers who possess power see any change (like a strategic project) as a threat, so a company's culture can affect the degree to which a strategy is implemented. As such, it is clear that it can, and does, play a crucial role in managing an organisation (Gupta et al 1984, 1987). In my research, culture might influence also the management decisions on implementation routes.

17. Project management knowledge

Literature showed that most of the researchers have noted the issue of project management knowledge (Newell et al 2004, Massingham 2004, Pretorius et al 2005, Hrebiniak (2006) and Nonaka 1994). Mouritsen et al (2001) stated that the focus should be on the management of intellectual capital as a success factor. In this review, the knowledge process-oriented perspective focuses on the tacit dimension of organisational knowledge in project management. Crawford (2001) has found variation in project management knowledge and practices among industries, countries and application areas. In project management, a continuous and dynamic adaptation to 'real life' has been noted by Nonaka (1994). Such knowledge is characterised as a vital resource by Oshri et al (2005). Maylor (2001) observed that during a new product development none of the 43 participants had any training in the area of project management. This reveals the problem of project management knowledge as a factor. Conversely, a common characteristic of such arguments in this field is that knowledge is important. It should be structured in ways that ensures the applicability of knowledge in accordance with the strategies of the company and affects the route selection decisions.

18. Uncertainty - urgency and unexpectedness

Many researchers highlight the importance of management of uncertainty as a basic issue in strategy theory. Srivannaboon (2004) identified a huge range of uncertainties faced by businesses and their projects. Uncertain future phenomena occur outside the project management context framework and inside the organisation. They cause trouble, crisis or loss in the course of implementing a program. Another source is the external factors, including the environment in which the project is undertaken, market conditions and actions of competitors. This is consistent with Wilson (2003) who suggested the need for a resilient strategy, one

capable of dealing with future uncertainties. This approach, however, also raises the suggestion that risk management involvement could encompass both opportunities (uncertainties with positive effects on objectives) and threats (uncertainties with negative effects on objectives). Since project values change according to changes in circumstances, it is critical to maintain the mission value for a program period by modifying schemes, systems or an alternative combination in strategic project implementation. This approach encompasses the role of strategic flexibility required, so this might affect the implementation route selection.

19. Urgent strategic projects

Emergent strategy sometimes gives rise to unexpected urgent projects. The reasons could be a new business opportunity, or for protection against a sudden threat, or, more obviously, to restore a severely damaged asset. It should be added that the common element throughout unexpected projects is surprise. The conclusion of Wearne's (2006) study was that unexpected events viewed as problematic and that organisations needed fluid decision-making and quick, accurate feedback to confront unexpected problems that threaten their business plans. This assumption is called into question, however, if this is constraining, given that instant action is needed to avoid an immediate threat, or the speed of work should depend on the economic or social value of time. These considerations fall into the argument that urgency influences implementation route decisions. Notwithstanding its dominance, questions remain regarding if time works against route decisions as fast implementation of a strategic project is required. Urgency is a main factor in the decision of route selection. This might involve overcoming the normative project management and selecting a different methodology to achieve fast results. Consequently, it means working as fast as possible (Wearne 2006).

20. Organisational maturity in project management

Based on the PMI (2005) approach, project management maturity is a conceptual framework of those organisational practices that are used for systematic management of correlation capabilities between projects, programs and portfolios, in alignment with the achievement of strategic goals. The previous argument reveals the influence of this factor in implementation route decisions. This depends on the maturity of an organisation and the intention of investments in project management methodologies. Kerzner (2003) and Tinnirello (2001) defined maturity in project management as the implementation of a standard methodology and accompanying processes. Grant et al (2006), revealed the median level of today's project management maturity. Extending this logic to the engagement of maturity with route selection, research reveals a weakness in this factor.

The models (figure 3.4) described by Pinto (2007) identify an organisation's PM maturity. Less mature organisations might follow a mostly simpler route; more mature organisations should follow combined combination of project management routes. Kerzner (2001, 2003) categorised five levels of PM maturity (Table 3.1).

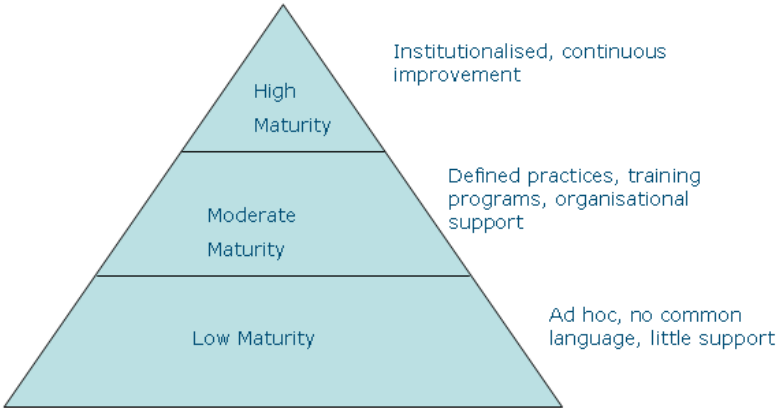

Figure 3.4 Project Management Maturity Models (Pinto 2007)

Level 1:	Common Language Sporadic use of Project Management Small pockets of interest in the firm No investment in PM training
Level 2:	Common Processes Tangible benefits made apparent PM support throughout the firm Development of a PM curriculum
Level 3:	Singular Methodology Integrated processes Cultural and managerial support Financial benefit from PM training
Level 4:	Benchmarking Analysis and evaluation of practices Project Office established
Level 5:	Continuous improvement Lessons learned files created Knowledge transfer between teams Mentoring program

Table 3.1 Kerzner's Project Management Maturity Model (Kerzner 2001, 2003)

3.4 Emergent Strategy

Mintzberg (1994) argued that “Strategy emerges over time as intentions collide with and accommodate a changing reality. An emergent strategy is a pattern of action that develops over time in an organization in the absence of a specific mission and goals, or despite a mission and goals. In our case, that means if a strategic direction changed, there was a remarkable difference in choice of an implementation route”. Earlier, Mintzberg et al (1985) stated that deliberate and emergent strategies may be conceived as two ends of a continuum along which real-world strategies lie. The more flexible an organisation is in this approach, the better it can meet the differing needs. Likewise, emergent strategy is perceived as set of actions, or behaviour, consistent over time, "a realized pattern [that] was not expressly intended" in the original planning of strategy. However, in view of the fact that the strategic targets should adapt always in the new situations it is clear that strategic projects targets might change. When a deliberate strategy is realized, the result matches the intended course of action. "Deliberate strategies provide the organization with a sense of purposeful direction." Emergent strategy implies that an organization is learning what works (Figure 3.5). Mixing the deliberate and the emergent strategies in some way will help the organization to control its course while encouraging the learning process, (Mintzberg, 1994, p. 23-25; Hax et al, 1996, p. 17). At the heart of the argument made here, was to illustrate the unstable strategic situations that led to a new approach of strategy implementation process. Therefore, this is perceived as one of the most important factors of route selection process according to the findings.

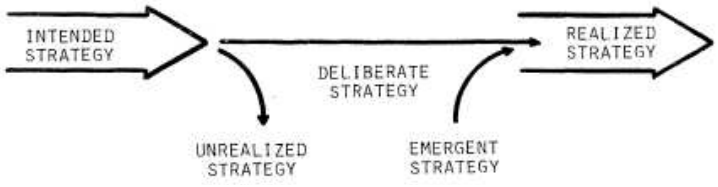

Figure 3.5 Types of strategy (Mintzberg et al 1985)

Alteration of the implementation route as a new strategic project emerges

Milosevic et al (2006) pointed out that as the project is executed, emergent actions occur that *may change the intended strategy*. This level ensures feedback from the project level as a means to allow the business strategy to adapt to its competitive attributes brought on by change. The authors therefore conclude that a combination of intended and emergent strategies is needed to *align project management and business strategy*. One can infer that once strategic managers have selected a business strategy with the intention of sustaining the organization that portfolio management can assist in the decision making efforts of selecting the *right projects* that will contribute to the organizational needs. In addition, a standard project lifecycle is needed for aligning the business strategy and the project management

elements. Morris et al (2004) identified strategic planning, portfolio management and emergent approach as important steps to achieve the alignment of business strategy and project management.

Figure 3.6 charts the confluence of strategy-making processes in reflection to figure 3.5 “types of strategy” of Mintzberg et al (1985). Strategic ideas and initiatives, whether of intended or emergent origin, are translated to strategic projects. What emerges are strategic actions, the flow of new products, services, processes and acquisitions that define what the company actually does. As the organisation does these things, managers confront and respond to unexpected opportunities which cycle back into the emergent process. As managers learn what works and what doesn’t in the competitive marketplace, their improved understanding flows back into the intended strategy process. Each strategic project implementation decision, no matter how slight, shapes what the company actually does. This creates a new set of opportunities and problems, and generates new intended and emergent inputs into the process.

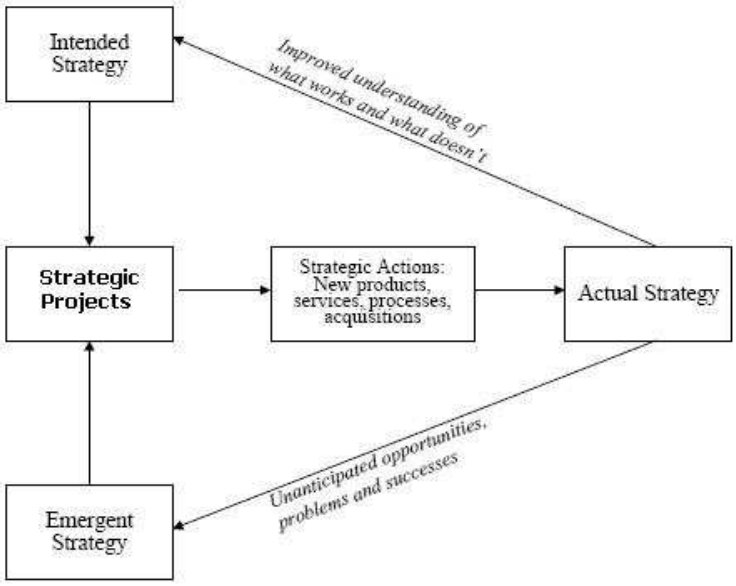

Figure 3.6 Intended (deliberate) and emergent strategy relationship with strategic projects implementation (adapted to this study from Christensen et al 2000)

Mintzberg et al (1985) advised “Openness to emergent strategy enables management to act before everything is fully understood — to respond to an evolving reality rather than having to focus on a stable fantasy. Emergent strategy itself implies learning what works”.

In practice, Milosevic et al (2006) found cases where project management elements not only support but also impact business strategy. That means companies adapt their business strategy, a process that Mintzberg (1994) refers to as an emergent strategy approach.

Furthermore, during strategic project execution, information is fed back to business leaders to allow for adaptation of the business strategy (alignment at the emergent strategic feedback level). This is supported by the argument that one of the major control mechanisms organizations use to ensure that their projects align with their expectations as the project progresses from one project phase to the next is the stage gate. This mediating process provides strategic feedback that can lead to what Mintzberg (1994) calls emergent strategy. The latter argument shows the possibility of alteration of the implementation route as a new strategic project emerges.

3.5 Literature review findings

The criticism of current PM literature, the stance and the direction of review

The review has shown that there are many different positions and views regarding the influence on decisions of implementation route. The researcher had always the question as to whether it might mean something different than what is said. The main questions of literature review concentrated on the divergent positions and arguments which supported that are relevant to research subject.

The literature review has also showed many ways and routes, beyond the normative and rational, for project implementation. In the literature, various proposals to use flexible management processes with explicitly defined rules and procedures as a source of success with multiple projects were discovered. Some of the papers suggested that use of specific methods and tools are correlating with superior performance in multi-project management process.

Furthermore, the principal observation that stems from this review is that there has been little progress made towards identifying the influence of factors on route selection decisions. These assumptions, and their consequent weaknesses, are reflected in of the sources on project management investigated in this study.

Previous documents of this DBA study revealed the link between organisational strategy and Project Management Context. This literature review has showed strategy to be an important factor in the implementation process throughout the project management context. At the same time, there is a critical influence from the emergent strategy as it pushes for faster implementations.

Furthermore, the literature review provides evidences of the normative and rational approach of project implementation. Portfolio, program and project management were separate but

linked processes. It has also substantiated the interrelationship, interdependency and the links between the project management processes. Those links might push the managers' perception that could combine them into a single process.
Several studies showed that the companies actually using the normative methods. In addition, the literature review identified and showed how companies were tried for project management efficiency.

It also revealed the confusion between program and project management (it is very easy to confuse the normative characteristics of the rational theories and create an individual implementation methodology). In reflection to the previous argument the project management maturity level plays an important role.

In this review, but also from previous documents' research results, it is evident that there is an alternative way of project implementation. Maylor (2001), Longman et al (2004), Anderson et al (2003), Suprateek (2000), Hamel et al (1996), Bostrom et al (1977), Markus (1983), Robey (1987), Leavitt (1965), Ginzberg, (1978), Galbraith, (1979), EPSRC Network (2004-2006), Winter et al (2006) revealed that the classical PM lifecycle model is a limited description of reality. Different approaches to strategic projects implementation include the socio-technical view, the process view, goal-directed implementation and the Analytic Hierarchy Process. In addition, other influence factors and criteria that might affect implementation route decisions. On the other hand, based on descriptive account given by literature, it is evident that the general tendency is to act rationally and systematically, based on the normative approach.

Schema 3.7 shows the conditions and factors that affect route selection.

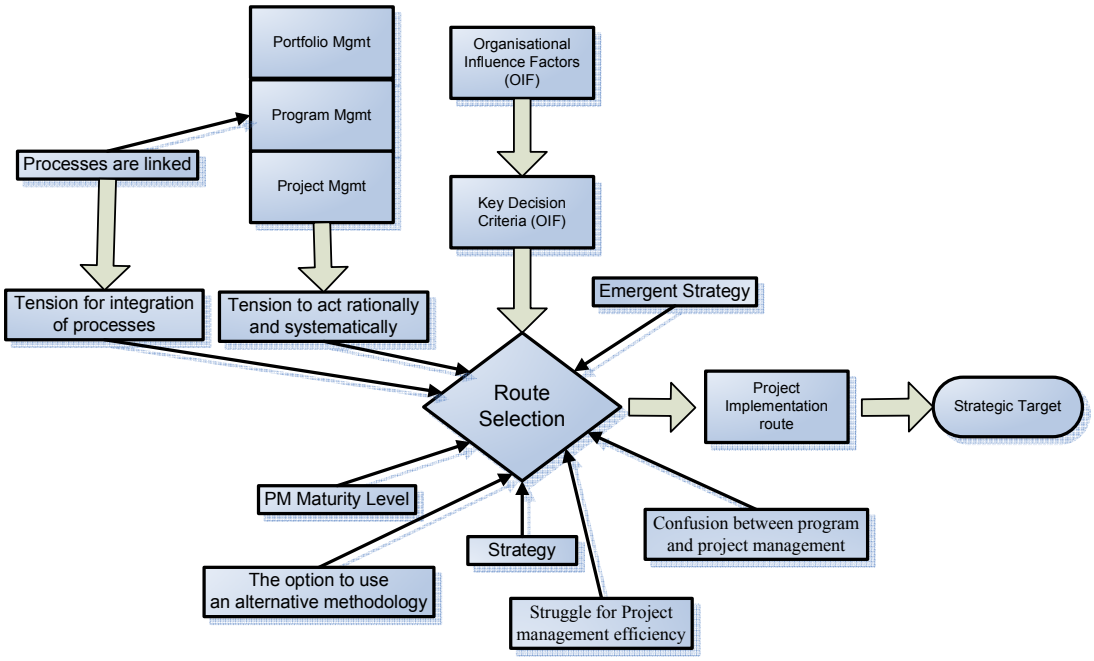

Figure 3.7 The influence of various conditions and factors on route selection action

The previous findings identified the influence forces, causes and reasons justifying the possibility of a diverse approach to implementations. Indeed, it is arguable whether project management is applied consistently, normatively and rationally or might have a different subsistence.

The main assumption is that there should be a different approach to project implementation routes decisions. However, this will be tested through qualitative research and investigation.

The two groups of the Key Decision Factors

The findings are presented in a way that emphasises their functional features and characteristics. The literature review has identified the roles of KDC and the OIF in affecting the route selection decisions.

Group 1: The Key Decision Criteria are illustrated in the following table.

#	Group1: The Key Decision Criteria
1	Avoidance of implementation routes issues and problems
2	Assist to the speed of strategic projects implementation.
3	Have an effective budget utilisation
4	Have coherent communication between projects
5	Effective knowledge transfer
6	Enable monitor the implementation process by senior management.
7	Effective resources utilisation and capacity planning
8	Effective forecasting of capacity and budgets
9	Effective links between processes
10	Effective link projects with interdependences
11	Effective organisational communication in relation with strategic projects implementation
12	Alignment with organisational strategy
13	Establishment of a link with other areas and processes
14	Effective centralised management - focuses on the big picture
15	Evaluation, categorisation and prioritisation of strategic projects
16	Continuous evaluation of projects, acceleration of projects, revises, kill or de-prioritise
17	Reflection and representation of investments
18	Identification of cost and benefits
19	Minimise the risk and avoidance of project failure
20	Minimise uncertainty of projects implementation
21	Avoidance of project cost overruns
22	Avoidance of project time overruns
23	Avoidance of project quality failures
24	Avoidance of low-value projects
25	Reduction in administrative time (status reporting and facilitation)
26	Maximisation of value of investments
27	Manages a series of related projects designed to accomplish broad goals
28	Efficiency and effectiveness of implementation – integration of schedules
29	Resolve inconsistencies and disconnects across projects
30	Effective management of multiple stakeholders
31	Achieve customers' satisfaction
32	Enable senior management to direct and control the implementation process.
33	Efficiency, simplicity, flexibility and scalability in implementation
34	Utilisation of appropriate methods models and tools at project and multi-project levels

Table 3.2 The Key Decision Criteria group

Group 2: The Organisational Influencing Factors (OIF), are depicted in the following table.

#	Group 2: The organisational influence factors
1	The external and internal influence factors
2	Organisational strategy as the driver
3	The type of organisation
4	The role of direct and indirect strategic projects
5	The use of appropriate mix of tools, techniques and models of implementation direction.
6	The organisational competitive advantage
7	Emergent strategy
8	Operating planning
9	Organisational complexity and bureaucracy
10	The confusion between PMC framework processes
11	Political factors
12	Systems functional support
13	The upper management
14	Human factor
15	Project cost
16	Organisational culture
17	The project management knowledge
18	Uncertainty - urgency and unexpectedness as factors
19	Urgent strategic projects
20	Organisational maturity in project management

Table 3.3 The organisational influence factors group

It should be noted that the KDC and give the impression of an arbitrary selection. Nevertheless, their selection was according to the most significant, obvious, justified and evident criteria. Those groups are not exhaustive. However, there could be other combinations of factors.

The exploitation of findings through qualitative research

The literature review revealed significant and ongoing crafting of project management content, structures and processes regarding the factors and ways of implementation. Furthermore, the review has noted the strengths and weaknesses of KDC and OIF. The review has presented some important factors in the route decision process. The primary implication is that the rational basis factors identification represents only part of the equation and needs to

be supplemented with further competencies related to the understanding of such influence. This understanding is leading the qualitative research, interviews and the empirical investigation that will be addressed and described in the subsequent chapters.
To use the information collected as evidence means “relying on background knowledge and auxiliary hypotheses, of laddering data with theory” (Willis et al 2000). Moreover, the next action was first to validate the influence (causes) of those two groups and second, to identify the nature and the behaviour of the route selection process (effect) in the real organisational environment. The outcome (events) of this mechanism (as defined first theoretically), should be the decisions of the implementation route. (Fisher 2004), “mechanisms are the causes of events”). “The true knowledge is knowledge of causes” (Francis Bacon).

The researcher has made the assumption that the KDC and OIF are mutually linked and influence the managers’ decisions. How are those factors and criteria involved in route selection decision? What is the route selection process? Is it stable or varied? The degree to which this evaluation results in a mutual understanding of investigation determines that those two groups of factors will be used for the construction of interview questions. Furthermore, it will support the collection of information from research participants to be used in the analysis of qualitative data. Figure 3.8 illustrates the process of literature review and the results of qualitative data analysis.

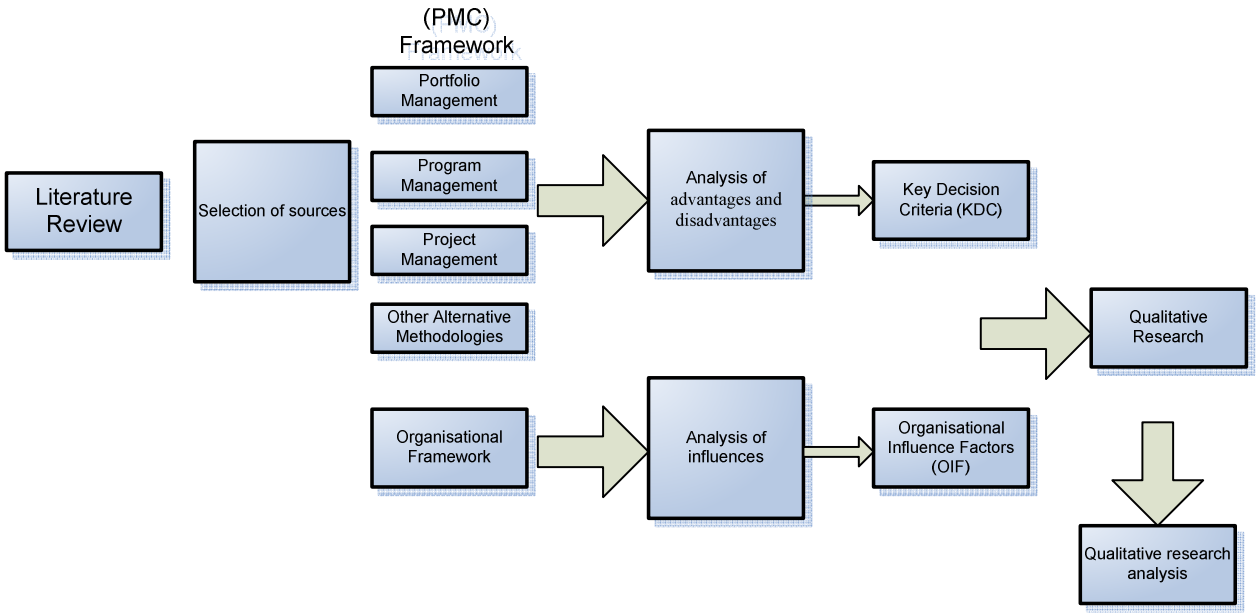

Figure 3.8 From literature review results to qualitative data analysis

3.6 Summary and conclusion

The literature review establishes the research background and foundation of this study. The literature offers little guidance on the implementation of route selection practices. This researcher suspects that different combinations of alternative project management processes are followed. Perhaps a combination of KDF influences the route decisions. This will also be tested using a qualitative research approach. The next chapter introduces the design and methodology of the research analysis. From a project management point of view, this approach contributed to the identification of the decision criteria, the organisational influencing factors and the route process followed. A core framework of research variables was formed. The evaluation and validation will be performed in the next chapter by qualitative data analysis of interviews, observations and collection of documents.

Chapter 4 Research Methodology

4.1 Introduction

This chapter presents the research methodology and discusses the selection and application of the methods used. It begins with a rationale for the chosen method, an explanation of the research design and stimuli of the proposed methodology. A critical examination of theories and practices in professional and managerial projects, together with dialogic approaches to knowledge around this research topic, was applied. The primary application of investigation methods considered in this thesis is carried out to reveal the *mechanisms* behind routes selection decisions via the study of factors. This section outlines methodology and research processes covering ethics, data collection and method of analysis. It also defines the key terms and explains the limitations of this study. Chapter 4 also describes the semi-structured interviews with participants and the observation process.

The objectives of this chapter are to:

- justify qualitative research methodology.
- justify the use of a realist approach.
- discuss research strategy.
- discuss research quality.
- explain the interviewing process adopted.
- identify ethical considerations.
- identify the limitations of this study.
- explain and review the data analysis used.

4.2 Overview of research methodology

The purpose of this study is to understand the full multi-dimensional, dynamic picture of strategic projects implementation routes of Project Management Context. A qualitative approach was adopted to determine the participants' perceptions, attitudes, experiences and feelings. This approach, with its emphasis on understanding complex, interrelated or changing phenomena, was relevant to the challenges of the research. It stresses describing, understanding, and explaining complex phenomena in the implementation of strategic projects. Therefore, it was applicable in this research to discover the relationships, the patterns and configurations among organisational factors and the context in which route selection activities occur.

Using qualitative approach to understand participants' behavior

Qualitative research is assumed to be appropriate in this study as it concentrates on the understanding of participants' behaviour rather than making statistical assumptions. The study was undertaken to discover a phenomenon, not to measure change. In addition, its aim was to discover *patterns* of behaviour which cannot be investigated through statistical methods. "Positivists assume that natural and social sciences measure independent facts about a single apprehensible reality composed of discrete elements whose nature can be known and categorised" (Guba et al. 1994, Tsoukas 1989). "In the same way, realists believe that there is a "real" world to discover even if it is only imperfectly and probabilistically apprehensible" (Godfrey et al. 1995, Guba et al. 1994, Tsoukas 1989). In light of previous arguments, social phenomena exist objectively (in an organisational environment and PMC framework specifically) and exert strong influences over human activities because people construe them in similar ways.

Research methodology

Research methodology includes a mixture of research method (interviews, observations, documents reviews). This was, according to Zikmund (1997), through systematic and objective data gathering, recording and analysing, to expand limits of knowledge by evaluating concepts and theories.

The research undertaken included the following.

1) Observations: The researcher observed organisations that were implementing strategic projects and therefore, was able to evaluate how the routes were selected and the organisations' key decision factors. The observation was a secondary consideration in this research.

2) Documents: All organisational documents included in strategic projects implementation process were collected: project plans, specification documents, feasibility studies, communication documents, resource management documents and other related documents.

3) Interviews: Key participants (project managers) were interviewed to elicit their perceptions of implementations. In this case, the required amount of data was collected via semi-structured, open questions. The interviews were carried out after the literature review.

The result gave an overall picture of the situation, as it stood at the time. This research examined information from the interviews, the observations, and the documentation data.

The research implementation model

This study is implemented in five stages (portrayed in figure 4.1) and the steps are signified by arrows. Intermediary steps (in the right and left boxes) show how the stages of the research design will be completed. The qualitative data analysis is performed to understand and assess

the data (Zikmund, 1997). This research involved drawing inductive conclusions and considered research issues using qualitative analysis. As a result, it relies on a realism paradigm that combines positivist involvement of quasi statistics and content analysis of current information. There was also a reflection with Documents 3 and 4. This is associated with the scientific approach and implies that investigations should be capable of *replication* (Bryman 1989). A cross-sectional design (among all collected sources) was therefore chosen as suitable to examine, with a critical review and assessment, the subject under consideration.

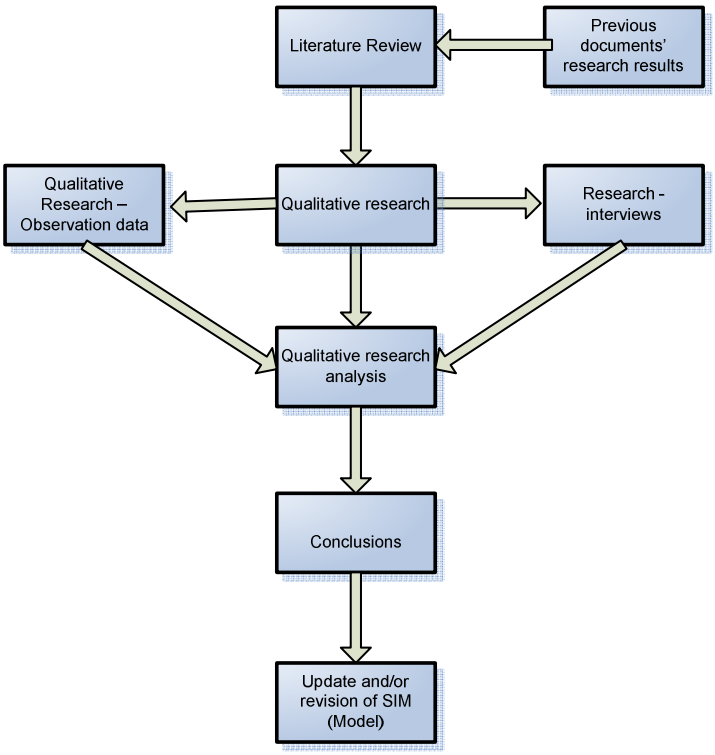

Figure 4.1 The research implementation model

Overview of data analysis and critical review method framework

The initial analysis stage was to determine whether there was a gap between observation and the interview data. The approach involved qualitative analysis and assessment of interviews, observations and documents, to consider any issues or misunderstandings in the text. Through this, it was possible to resolve such issues at the start of this study (Easterby et al. 1991).

Reasoning from observation

Ticehurst et al. (2000) stated that significant research outcomes will only result from structured and qualitative preparation. It is often possible to create a theory from reasoning and investigation to predict what would happen in practice. Yet, reasoning from an observation back to the correct practical model is difficult. Usually, it is not taken with the

appropriate attention in sense that there are many possible explanations for the given information. For this study, a general investigative framework, introduced in the following section, was created. The critical review and construction of arguments is performed using the four-stage (Figure 4.2) sequence: definition – abduction – deduction – induction (Fisher 2004). This was applicable through isolation of the phenomenon (abduction), analysis and assessment of background reasons and factors (deduction), and generalization of findings (induction) to produce conclusions in correlation with other findings.

Figure 4.2 shows the analysis and critical review process used in this study. Participants were requested to answer the interview questions in as much detail as possible. Qualitative analysis is used in association with an inductive and deductive approach, where a theory is formulated on the basis of retaining the richness of data collected (Saunders et al. 2000). Figure 4.3 depicts the analysis and critical review process.

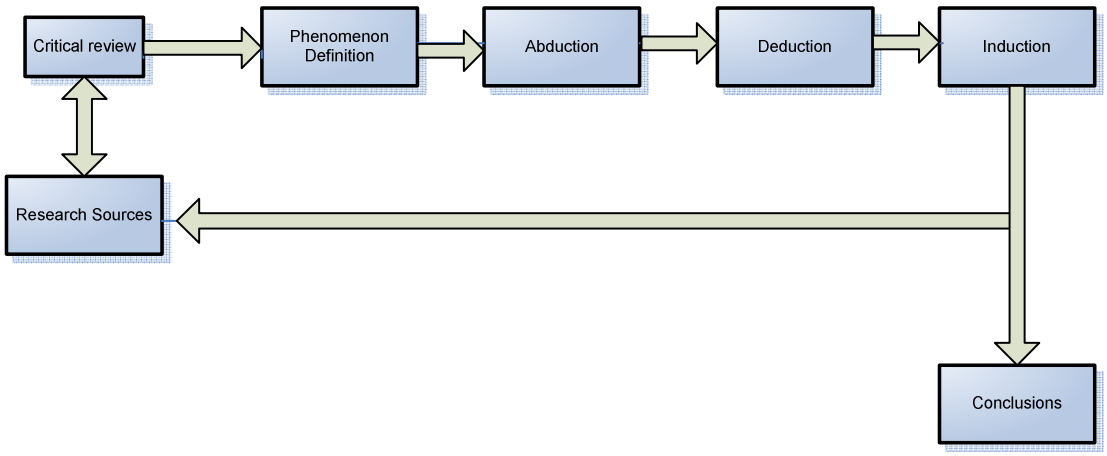

Figure 4.2 Data analysis and critical review method overview

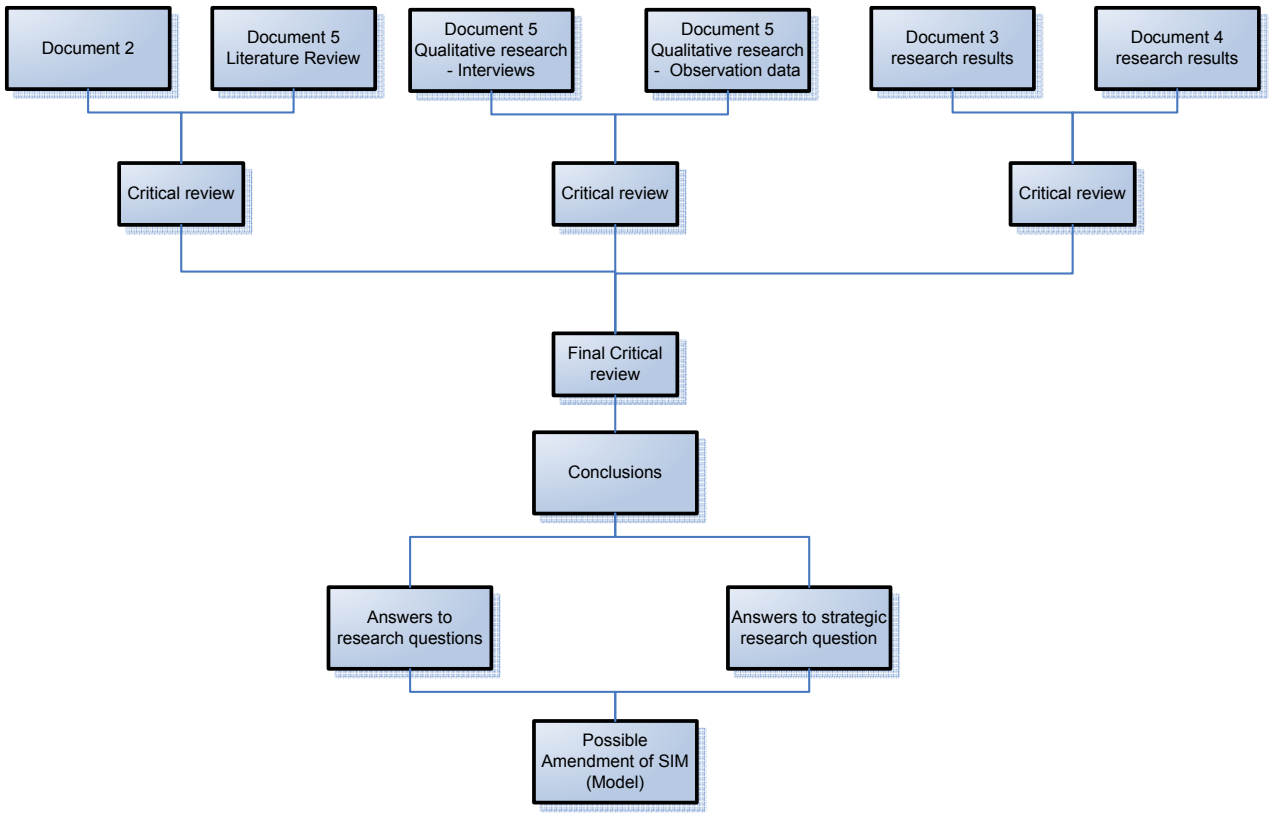

Figure 4.3 The analysis and critical review process

Adopting a realist approach

The qualitative research adopted a realist approach in the manner of Miles et al. (1994): moving towards an understanding of the common reality in implementation routes selection phenomenon. ("What is rational is real and what is real is rational." George Wilhelm Friedrich Hegel). Using such approach literally means the study of phenomena. This approach emphasise the search for the universal essences of various sorts of matters, including human actions and motives. It is a way of describing something that exists as part of the world that we live in. Phenomena were the events, situations, participants' experiences or concepts. This a methodological framework is also supported by Calori's (2002) 'pragmatic epistemology' involving practitioners and pragmatic researchers who engage in co-authoring theories and creating knowledge which is immediate and contextualized. The key principles of this approach match the actual research. Indeed, this is conveyed within the ethnographic approach in that it has a background in anthropology and is a methodology for descriptive studies of cultures and peoples. People under investigation had a common characteristic the strategic projects implementation routes.

Studying unpredictable situations

However, the behavioural nature of modern organisations is unpredictable Therefore, it is necessary to adopt a method to identify the *mechanisms* producing social events, although these are in a much greater state of flux than they are in the physical world. In particular, we must understand that human agency is made possible by social structures that require the reproduction of certain actions/pre-conditions. The method should involve an in-depth understanding of behaviour and the reasons for it. This approach illuminates the specific and identifies phenomena through their perception by the actors (the participants) during the phenomenon of selection of implementation route. Transcendental realism influenced this study. Therefore, during scientific investigation the phenomena were found to have real, manageable, internal mechanisms that produced particular outcomes (the route choices). This located any causal relationships at the level of the generative mechanism. The result was an ongoing process in which the outcomes were used to understand the mechanisms behind them.

Studying personal knowledge and reality

According to Moustakas (1994), such an approach is the most appropriate method for conducting research into people or organisations; it is based on personal knowledge and reality, and emphasizes the importance of personal perspective and interpretation. In the grand scheme of things, however, this is based on a full treatment given by the German philosopher G.W.F. Hegel (1770 – 1831), who argued that such an approach begins with an "exploration of phenomena as a means to finally grasping the absolute, logical, ontological spirit that is behind phenomena" (Kalkavage 2007). The latter approach helped also to discover the hidden incidents between emergent strategy and implementation routes.

Issues in investigating mechanisms and events

The investigation of mechanisms, events, through participants' experiences performed to provide evidence for realistic approach of Key Decision Factors. To achieve this, the researcher believes that the KDF (including any hidden incidents or unexpected phenomena) have real manipulability that can produce particular outcomes (specific factors). Figure 4.4 illustrates the logic of investigation of the Key Decision Factors. The lack of understanding of these phenomena may exist because the phenomenon has not been overtly described or because our understanding of its impact may be unclear (for example, the staff resistance to comply with a procedure because of organisational culture factor). This is in contrast to the empirical stance argument of Sayer (1992) that it is possible to observe the relationship between cause and effect. This argument posits that, while some of the collected information could represent external objects, properties, and events, other information may not have

accurate representation. In contrast to previous arguments, Leplin (1984) and Kuhn (1970) stated that we have reason to believe that the things said about the "unobservable" entities are true.

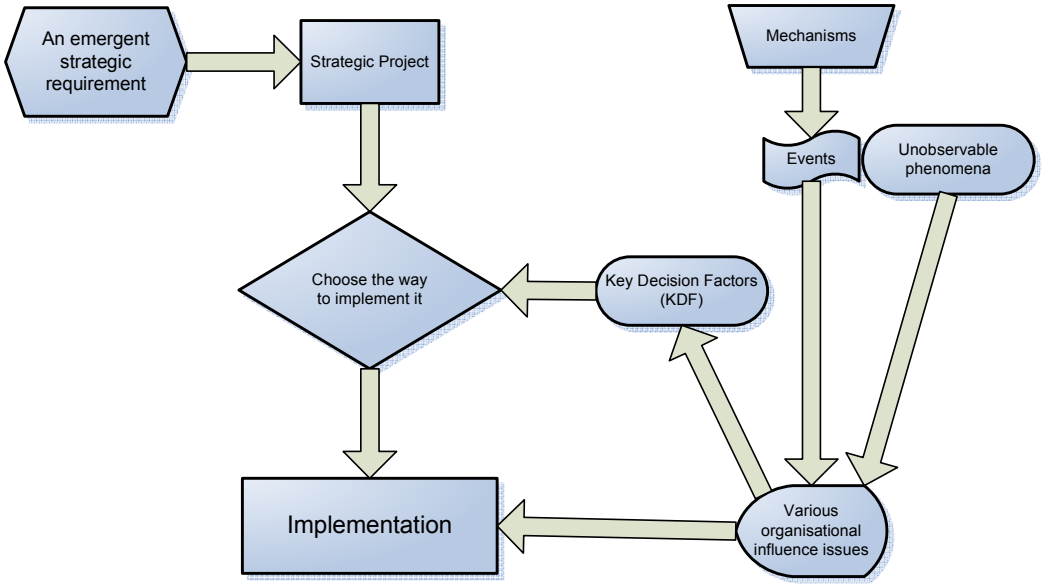

Figure 4.4 The mechanisms, the events and unobservable phenomena behind the Key Decision Factors of strategic projects implementation

Adopting a case study approach of three organisations

The case study method approach comprised an in-depth, longitudinal examination of events in three financial organisations. According to Yin (2003) a case study design is considered because the focus of the study is to answer "how" and "why" questions. In this particular approach, case studies are analysed in data analysis section. The implementation-route selection process within real-life context was investigated by observation. This approach provided a systematic way of looking at events, collecting data, analyzing information, and categorising the findings. As a result, the researcher gained a sharpened understanding of why route selection events happened and what might merit a more extensive approach. This approach can also include some quantitative (quasi statistical analysis) evidence, in addition to other sources collected during research.

The research type

The current research combines *exploratory* with *explanatory* (causal) types of research. It explores situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2003). It is exploratory, according to Fisher's (2004) approach, as it looks for conclusive evidence to determine a course of action. In this case this is performed to investigate implementation routes decisions. Finally, it is in part explanatory (causal), as it

describes the activity that occurs as a direct result of various phenomena. The previous approach is compatible with Saunder et al.'s (2000) argument that research could be conducted to clarify and define a problem by finding out what is happening and by gaining insights into how to assess phenomena in a new light.

Research issues

Reliability

Reliability was assessed through answers to the following questions: "Will the measure yield similar results on different occasions?" and "Will, by using different methodology, there be similar observations on a different occasion?" The conclusions offer correlated proof sampled from significant, cross-checked, qualitative sources such as organisational observation in case studies and interview data.

Validity

A second issue was validity, also known as credibility and/or dependability. The question here is: "Are the reasons, for answers given, clear and unambiguous?" Each participant from different organisations was asked significant, semi-structured questions. Questions were unambiguous and the interviews were designed to assess the research subjects in depth. Ambiguities, which are inherent in human language, were recognized in the qualitative analysis.

Generalising the research results

The final issue was generalising the research results. The main disadvantage of the qualitative approach is that the findings could not extend to wider populations with the same degree of certainty that quantitative analyses can. The question here is: "Can interviews of eight participants, regarding decisions, be duplicated with a separate group and, if so, will it tell us anything?" Results of papers over the past 30 years have shown no consistent response (Easterby et al. 1991).

Assessment of research quality - Reliability and Validity

The validity and the advantage of the research methods as well as the quality and accuracy of the collected information are considered. According to Weber (1990), to make valid inferences from the text, the classification procedure must be consistent: "different people should code the same text in the same way". Reliability will be discussed in the following terms:

Stability: Can the same coder obtain the same results try after try?

Reproducibility: Do coding schemes lead to the same text being coded in the same category by different people?

The measures of the study are based on factors such as the reliability, the scientific trustworthiness of the information, and its repeatability. One of the main issues is the appropriateness of a qualitative approach method. The questions became if inferences that are more general can be drawn from collected data and if the results of such a study are valid not only for the study but for the population on which the research question wanted to make statements. Since the data was produced from social interactions, they are *constructions or interpretations*. There was no "pure," "raw" data, uncontaminated by human thought and action, and the significance of data depended on how material fit into the corroborating data.

Validation and trustworthiness

Validation of findings was a check, such as divergence from initial expectations (by personal notes kept from the beginning) to review how the data progressed and by convergence with other sources by triangulation and comparisons with the literature findings. There is a disagreement, however, over the terms of validity, reliability, rigor, and parallel terms such as trustworthiness, credibility, transferability and relevance. The researcher understands validity as "the trustworthiness of inferences drawn from data," according to Freeman et al. (2007).

Triangulation

Finally, by using triangulation, the results from interviews, observation and information from documents were compared to check for consistency in answers and attitudes (Winget 2005). Triangulation is the location of an unknown point from two or more known points. The more known points that are used, the more likely the unknown location is to be identified. In qualitative research, by using interviews, theory, previous research literature, observations, and other data can be compared to determine the validity of a certain theme or category. When several sources are used to explain an event, the findings become more valid than when an event is explained from a single incident or observation (Creswell et al., 2000, Maxwell, 1996). Observation served as a technique for verifying or nullifying information provided in face-to-face encounters. The investigation in literature offered the list of KDC and OIF to be used for *filtering* the observation and interview data. Another way was to use extensive quotations from field notes, transcripts of interviews and recordings.

Research strategy

The research design was like a project plan which specified the time frames, methods and procedures for collecting and analyzing the information gathered as well as the strategy for

successful implementation. In contrast, according to Yin (2003), there are occasions when more than one strategy may be relevant.

The nature of research questions

The development pattern adopted for the construction of the interview questions is based on KDC and OIF factors and their association with implementation routes selection process. The questions were developed to collect respondents' views on routes selection process in the past, as well as their predictions for the future.

Based on Fisher (2004), the interviews in this study were semi-structured since a schedule of questions related to the research subject was used. The main requirement was to compare the views and experiences of participants with other information collected through observations and documents.

Since observation had already been performed during the period of DBA study, semi-structured interviews involving a series of open-ended questions based on the research topic were used. If the interview schedule was too tightly structured, the phenomena under investigation might not be explored in sufficient breadth or depth. However, the open ended nature of the questions defined the topic and provided opportunities for both interviewer and interviewee to discuss some topics in more detail. The interviewees felt as though they were participating in a conversation rather than in a formal question-and-answer session.

By having semi-structured questionnaires, participants had a lot of latitude when responding to the questions. Appendix 6 contains full details on the interview questions. The last step in questionnaire design was to test it with a group of sample participants. The researchers' pilot questionnaire was tested on project managers at the researcher's company. This test allowed the identification of problems with wording and instructions.

Participant's categories

The plan for the interviews was to involve participants from banking and insurance service sectors and from organisations in Greece offering project management services. The respondents consisted of managers and projects managers from the three groups of selected organisations. The third group (project management consultancy service sector) was included to reveal potential differences in the implementation of strategic projects. The participants were people in roles related to those layers and functionalities in the organisations. There were groups of upper management (strategic decisions and planning), middle management (program and project management), and functional areas management (external or internal project management consultants/experts implementers). Two of the interviewees were general

managers. Others were project managers, directors of business units and departmental managers. In a detailed approach, participants were in one of the following three categories: Senior and Business Managers, Program and Project Managers/Practitioners and External or internal Project Management Consultants.

The eight semi-structured interviews were held with participants from three sectors. In addition, they were conducted with six senior managers from the banking and insurance sectors and two interviews were performed with external project management consultants. Key informant interviews were chosen by the researcher because of the range of perspectives viewpoints. Participants who are experts in business and project management provided the research with information through verbal interchange and conversation. Non-verbal behaviors and the interview context were noted by the researcher and became part of the data.

Banking and insurance sectors participants

- Senior and Business Managers (Executives, Chief Executive Officers, Chief Financial Officers or Vice Presidents): people who make strategic decisions on whether or not to implement projects.

- Program and Project Managers/Practitioners (Project Management Office Managers, Project Managers or Directors of Project Management): people who champion/sell project management largely in the context of their own organisations.

Project Management Consultants sector participants

- External or internal Project Management Consultants/Experts implementers (Small and Large Independent Sellers): experts whose experiences included both successful and unsuccessful results in project management.

Description of the eight interviewees

Banking Sector

1. L. B. is a General Manager in a Greek group of small banks with 3000 staff and approximately 130 branches. His 30 years of experience in service organisations and business projects was very important.

2. G. P. is a project manager in the largest bank organisation in Greece with more than 10,000 permanent staff. He has 23 years' experience in banks and business projects as an analyst and project manager.

3. N. S is an IT Head, runs large projects in a large international bank organisation with 105,000 employees. He has 33 years of experience in the banking sector, including its IT and business divisions.

Insurance sector

4. G. K. is an IT head and project manager in a large Greek insurance company. He has 26 years experience in the implementation of projects on IT systems.

5. X. L. is an IT general manager in a large Greek insurance organisation with 4,500 staff, running large IT infrastructure and business products development. He has 23 years of experience in business and IT fields.

6. P. S. is a project manager in a large Greek insurance organisation with 4,500 staff, running large IT infrastructure and business products development. He has 26 years of experience in business and IT fields.

Project Management consulting sector

7. G. S. is an executive project manager in a consulting firm of 100 staff.
He has 26 years' experience in project management as a consultant in large service organisations.

8. F. G. is a CCO of a consulting organisation with 120 staff. He has specialized in business and IT projects. He has 24 years' experience as a project manager on businesses and IT projects.

Implementation of interviews

Initially, participants used e-mail or by phone to consent to participate to the interviews. A sample interview letter contact is in Appendix 4. The interviews were face-to-face or through conference calls among the participants. The interviews were conducted with one respondent at a time, at the respondent's workplace. Confidential interviews with those executives would be a more reliable method for the collection of information, because it is easier to express their opinions when they talk rather than when they write (Saunders et al. 1998).

Each interview lasted approximately 90 minutes. During the interviews, the researcher often interjected sub-questions, based on the primary semi-structured questions and direction of conversation, for clarification of the answers and meanings given by the interviewees. This was because the researcher wanted to enhance the certainty of participants' answers. The

researcher took notes during the interviews and sometimes also used a tape-recorder so that the cues that had been missed the first time could be heard later.

The interviews started with the explanation of the scope of the research project to the participant. A signed consent from each participant was needed to preserve the confidentiality of the information (see Appendix 5). The interviews were in two forms: 1) oral histories of project management processes used; and 2) personal narratives regarding strategic projects implementation through the PMC framework routes. The purpose of the interviews was to gather qualitative data by exploring participants' strategic projects implementation activities (i.e. opinions, experiences, and feelings) to produce subjective data by describing social phenomena as they occurred naturally in the business world.

The areas to be covered were specific but questions were open and receptive to ad hoc information from the interviewee. This was particularly important as limited time was available for each interview and the interviewer wanted to be sure that the key issues were covered. The research was conducted in a way that did not presume to know what would be discovered. There was an advantage of flexible and adaptable change of direction of the discussion when new insights and material appeared during interviews. In agreement with Saunders et al. (2000) argument, "the focus on change was initially broad and became progressively narrower as the research progressed". If the interviewee had difficulty answering a question or provided only a brief response, the interviewer used cues or prompts to encourage the interviewee to elaborate. Throughout the process, ideas were formulated and documented, which directed the focus on following interviews.

Observation

Observation of the organisational environment was used to gather additional information and to crosscheck the data collected from the interviews. The observation was performed in three service organisations in Greece. This provided valuable background information about the environment in which the research project was undertaken and resulted in a close familiarity with a group of practices through an intensive involvement with implementation practices of strategic projects. Observation, the most widely used technique (Agar 1996), also served "as a method for verifying or nullifying information provided in face-to-face encounters" (Hancock 2002).

Saunders et al. (2000) stated that experiential data involves the observations and feelings of the observer. The related activities, collected by observation, were noted down by the researcher as they happened. Specifically, in case of the first (the bank) and the third organisation (the insurance company), interview data were collected where the researcher was

employed. This was the firsthand collection of data by the researcher on influencing variables of interest for the specific purpose of the study (Sekaran, 2003). The secondary data were organisational records (procedures, project documentation etc) and all those that were related to the research subject as supportive documentation. Secondary data was also collected from earlier primary research (Sekaran, 2003); in this case, the observation collection started at the beginning of DBA course. The researcher recorded observations of situation and environment by making notes of what had been observed. Observations were particularly useful in trying to understand the philosophy of organisations regarding strategy implementation and implementation routes selection process.

Collection of documents

The documentation consisted of policy documents, mission statements, annual reports, minutes or meetings, codes of conduct, and many other business and project management documents. Table 4.1 depicts the information derived from observation of the three organisations.

Organisations	**Years of observation**	**Information gathered (by category)**
Financial Organisation 1 (Bank)	3	Project management documents, meeting minutes and behaviours, feasibility studies and proposals, procedures, business documents.
Financial Organisation 2 (Bank)	2	Meeting minutes, behaviours, procedures, business documents, discussions on project management, strategy direction.
Financial Organisation 3 (Insurance)	2	Project management documents, meeting minutes and behaviours, feasibility studies and proposals, procedures, business documents, strategy direction.

Table 4.1 Organisations' information under observation

Observational data was used as an alternative to the interview data. The strength of observation and interaction showed in that discrepancies were discovered between what

participants said (and often believe) should happen (the formal system) and what actually happened.

Research limitations

This research had several limitations. For example, all of the interviews were conducted by the researcher. Time constraints created problems in the planned length, depth and the unfolding of the qualitative research. Subsequently, the material collected for qualitative research was limited since it was drawn from eight interviews. However, the study included in addition the observation data, collected through since 2007 from three different organisations.

Types of organisations and participants surveyed were diverse in their main service function, but attitudes and work ethics were limited to the Athens area. Thus, socio-economic and political bias of interviewees may have been a limiting factor. Diversity of type and national characteristics of those organisations observed, however, helped to balance the biases in the qualitative analysis and conclusions.

The semi-structured interview questions were meticulously worded to reduce ambiguity. Information requirements were specific in the preparation and interviewees were helped to fully understand the concept of the interview.

For these reasons, the results obtained from this study were treated in a conservative manner at aggregation levels which are commensurate with the resolution of information and the scale of the study.

The amount of qualitative data was limited, and the findings therefore, could not be, and should not be, taken as either exhaustive or conclusive. As a result, there is much room for additional research in this area.

The research strategy was determined by the use of all available information: the literature, observations, and interviews with key project managers. All of the organisations that contributed to research agreed to give the researcher access to related information.

Time and budget

Qualitative data collection can be intensive and time-consuming. In this case, there were structured interview meeting schedules with organisations' representatives and a contact diary was kept for tracking reasons. Several issues affected the qualitative research.

Research issues

One of the most important issues was the need to take great care to involve only highly qualified and knowledgeable respondents, as it might be unreasonable to expect a single person in an organisation to have sufficient knowledge to answer interview questions that addressed practices in all dimensions of this research subject.

An important issue was that the researcher had to do all the interviews personally and in a limited amount of time of three months. The result meant that, whilst all participants had an equal opportunity for an interview, time permitted only eight participants to be interviewed.

A primary issue of any study involving personnel is its effects on any project managers who participated in the interviews and the chance that their opinions and information would be disclosed. To mitigate such ethical concerns, interview guidelines were adopted to ensure that no participant's identifying information appeared in the research report.

4.4 Ethical considerations

According to the Economic and Social Research Council (2008), while this research is conducted outside the UK, the researcher followed the ethics of the host country in developing and undertaking the research. Moreover, research ethics in developing regions raises issues about what is meant by ethics and, therefore, how we conceptualize notions of rights (consent, choice, volition, self-determination, etc) and the handling of personal data in an international context where data handling may not be subject to the UK Data Protection Act. According to ESRC (2008), the researcher addressed the six key principles of ethical research:

1. Research is designed, reviewed and undertaken to ensure integrity and quality.
2. Research participants were fully informed about the purpose, methods and intended possible uses of the research, what their participation in the research entails and what risks, if any, were involved.
3. The anonymity of respondents and confidentiality of information was assured.
4. Research participants participated voluntarily, free from any coercion.
5. No participants came to any harm.
6. The independence of research was to be clear and any conflicts of interest or partiality to be explicit.

It was important to demonstrate this confidentiality agreement by obtaining consent (see Appendix 5) from all participants to use the information for the research. Participation in this

study was completely voluntary and communication was either face-to-face, by phone or email, and there was no coercion to re-engage if participants chose to withdraw from the study at any time. They were also informed of the processes that would be engaged, according to the scope of this research. The participants were given the opportunity to express any issues of concern pertaining to the research documentation given to them. The gathering process of this research data avoided disclosure of participants' names, addresses, occupation and location.

Confidentiality and anonymity and participants consent

Moreover, the confidentiality and anonymity of participants' data were assured as the norm for the ethical conduct of the research and the researcher agreed not to reveal the identity of the participants to anyone outside of the study. The researcher made it abundantly clear to the participants that information would only be shared with other academic researchers under strict terms and conditions. Participants were assured that their information would not be shared with any other participants and that all survey data would be stored in a locked file cabinet located in the researcher's home for a period of five years. Subsequently, information obtained during the survey will remain private and would neither be made available to the general public nor sold. It will also not be re-used without the express, prior permission of the interviewee and, finally, all original data will be destroyed after five years.

4.5 Qualitative Data Analysis

Manipulation of qualitative data

According to Strauss et al. (1990), the analysis of data from the interviews should focus on identifying trends or themes so that patterns could be identified and mapped. After the interviews were completed, transcripts were produced of the data by analyzing the tape-recorded interviews and the notes of the sections in the paper (Hancock 2002) which contained information and key quotations (Weber 1990).

Data analysis process

Epistemologically, there was a reproduction and interpretation of related information by using coding (Bruce 2007), based on KDC and OIF influencing variables in a sense of interpretive theory development. In addition, Figure 4.5 shows the analysis methodology adopted. Data analysis was the application of logic to understand and interpret the data collected. The interviewees described phenomena as events, situations, or concepts that they have witnessed or personally experienced. Through the analysis, the information regarding the Key Decision Factors and the implementation selection process are also categorised. Such analysis is

derived from the influencing variables (KDC and OIF) identified in literature which are also perceived as the drivers (or indicators) of route selection process. Finally, conclusions are constructed and framed from the structured, analyzed information.

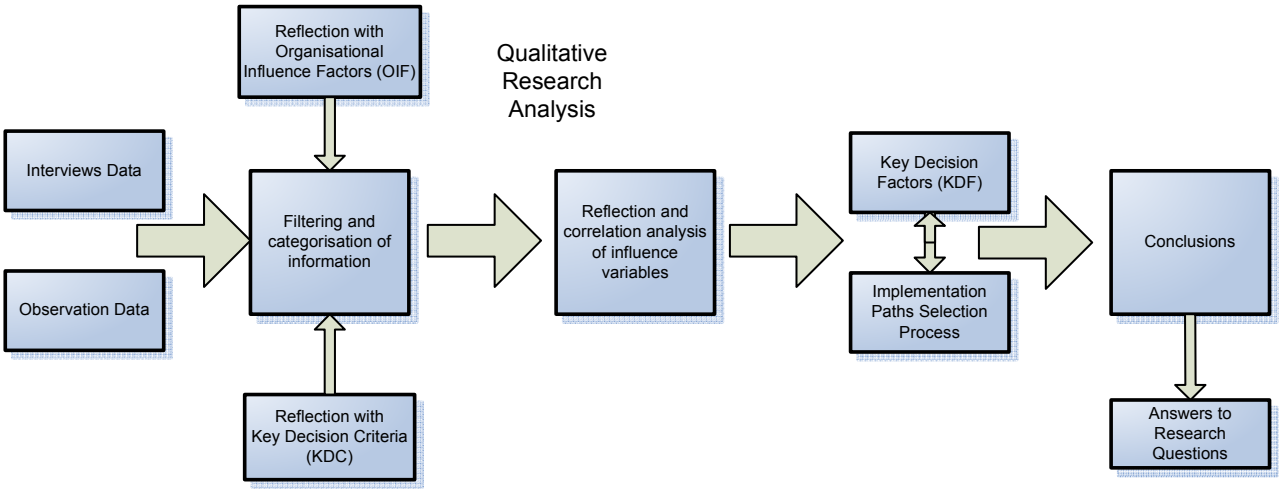

Figure 4.5 Qualitative research data analysis framework

The data analysis based on the perception of KDF as mechanisms causing the event of route selection

The information was filtered and deconstructed based on Derrida's (1976, 1981) and Bhaskar's (1978) theories of mechanisms, events, and experiences (Figure 4.6).

Therefore the research approach was to collect participants' experiences of related events and then to identify the complex mechanisms behind them. The discovery goal was to deconstruct observable or non-observable structures that contain events and experiences caused by those mechanisms. In short, the real domain consists of mechanisms or causal powers with a tendency to produce patterns of observable events (route selection choices).

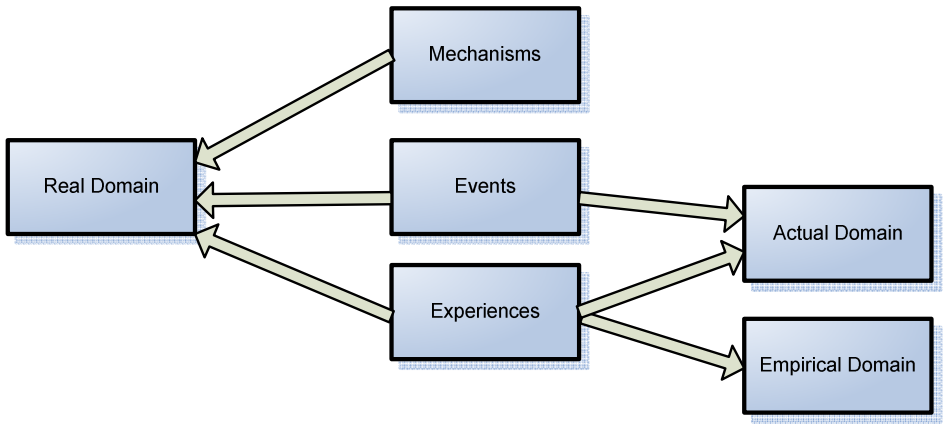

Figure 4.6 The ontological assumptions of realism.

Deduction and induction

Subsequently, the steps of analysis primarily used first a deductive and then an inductive process. Deductive reasoning performed in literature review to produce the KDF and normative routes (from the general to the specific). The theory identified the research topic and then it narrowed down to specific findings (hypotheses) of KDF and normative implementation routes (testable findings). Then inductive reasoning performed in the other way by testing the findings in qualitative data (observations, documents and interviews). As Saunders et al. (2000) stated, the object is to express the world as it is understood by the subject. This is started by looking for patterns, formulating hypothesis, and then drawing conclusions. The conceptual model of the deductive and inductive processes is illustrated in figure 4.7.

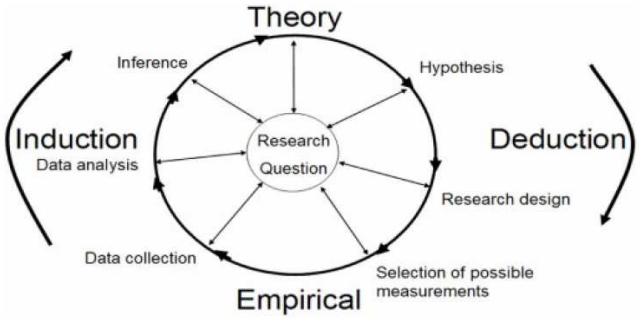

Figure 4.7 Conceptual model of the processes of induction and deduction. Modified from Wallace (1971).

Using content analysis for the identification of route selection phenomena

Content analysis is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Berelson, 1952; Krippendorff, 1980; and Weber, 1990). Holsti (1969) offers a broad definition of content analysis as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages."

Performing content analysis

The material was systematically analyzed, following the rules of process, turning the material into content analytical units. The aspects of text interpretation, classified into manageable categories of findings, were carefully revised within the process of analysis (feedback loops).

The focus based on the logic of 'logogenesis' according to Iedema (2003), including the texturing of entities. The quality of the research process was maintained continuously (Freeman et al. 2007) including decisions to reconsider the analysis, interpretations, and

representations of data. The results were presented as though they were being expressed by the subjects themselves, using project management and organisational language and terminology to describe the phenomena under study.

This was useful for examining trends and patterns in observation notes, documents and interview narratives. The technique for determining the reason of an influence of an OIF or an expectation of KDC was to compile a list of suspected expressions, examine them, and correlate the frequency of meanings or situations described to help build an evidence.

For example, the "Key Word In Context" (KWIC) search was used to test for the consistency of usage of words and the frequency of appearance of a KDC or an OIF in the expressions and notions. The categories of findings were those with similar meaning or connotations (Weber, 1990) related to a KDF. Further analysis is performed after the identification of the KDF to understand the influence of the factor on route selection choice.

As Miles and Huberman (1994) stated, social phenomena exist, not only in the mind, but also in the objective world. There are regularities and sequences that link them. Analysis takes the form of an immersion in the material, looking for differences and similarities in understanding or experience, which continues until satisfactory categories emerge. New concepts and understandings revealed by assessment of the relationship between the various ideas, categories and constructs (Hancock 2002). The particulars tell the story (Creswell 1998, 2005); therefore, an inductive method is used in reasoning from the specific to the whole and focused on the particulars in descriptive data collected, rather than the general. The data analysis chapter illustrates the finding of KDF and the route selection case studies.

The influence of transcendental realism during qualitative data analysis

Transcendental realism has its roots in the Kantian philosophy, a form of transcendentalism that permits subjects to be fully cognizant of all limitations of their mind, and adjust their cognition accordingly as they seek to understand the world as it actually exists (things-in-themselves). Bhaskar (1997) developed "transcendental realism," where the entities and mechanisms discovered by science are not simply beings. They are beings in terms of our access to these beings. Nevertheless, these mechanisms or beings exist regardless of human access to them. Similarly, Kant noted that transcendental idealism contains everything that intuited in space and time. Therefore, all objects of any experience possible to us are nothing but appearances, that is, mere representations. Thus, in the manner in which they are represented, as extended beings or as series of alterations, have no independent existence outside our thoughts. Transcendental realism influenced the researcher in the study of [noemata] (the real meanings of participants' narratives) and their reciprocal relations.

The implication of transcendental realism for the qualitative data analysis is based on the position that the phenomenon of implementation route selection exists as an aspect of the influence from various factors in the organisational environment. Therefore, we need to have some idea how they interact with that environment is such a way as to acquire knowledge of them" (Collier 1994). "They are everything that intuited in space and time" (Bhaskar 1978).

Consequently, there is a need to develop or acquire an idea of what the factors actually. This can be discerned from the implicit knowledge they possess by virtue of being factors and thus part of organisational environment. The factors are related to the powers / mechanisms behind. For example the power / mechanism of "human behaviour" is associated to the organisational influence factors: "Organisational culture" and "Human factor" but also with the key decision criteria "Effective management of multiple stakeholders". This is clear because those factors influence the managers' decision of the projects implementation path. The data analysis influenced by transcendental realism in order to render this knowledge explicit.

According to Bhaskar (1978) there are three domains as discrete levels of reality: 'the real', 'the actual', and 'the empirical'. (Table 4.2)

	The Real	**The Actual**	**The Empirical**
Mechanism	X		
Events	X	X	
Experiences	X	X	X

Table 4.2 The distinction between the three domains of 'the real', 'the actual', and 'the empirical' as discrete levels of reality. (Bhaskar 1978)

Discovering the powers (mechanisms) and the related factors

The relationship between the levels can be explained as follows: "The real is constituted by those powers (mechanisms) that generate the series of events that constitute the actual, whereas the empirical, in turn, consists of experiences of certain events. These layers of reality are interrelated, but not reducible to each other". (Nilsen 2004)

The first level is the empirical and is constituted by that which is experienced by perceiving subjects. These are the participants' narratives on their experience and the researcher's observations that recorded as experienced during observation of the three organisations. For example, the experience of an interviewee (a bank project manager that recorded during the interview) was the pressure he felt came from the upper management, for the delivery of a new strategic project very fast and earlier than the initial planned date (it was the construction of a new bank branch). "Experiences are appearances, that is, mere representations of the real mechanism behind" (Bhaskar 1978).

The second level is the actual and is constituted by events which are logically prior to experiences. The previous participant narrated a story of various events before and during the period of project implementation. The researcher discovered those events and grouped them in relation to the influence factors discovered in theory. "They are beings in terms of our access to these beings" (Bhaskar 1978). For example, a specific event based on the previous example is the decision of project manager to follow a particular pathway, in order to implement the strategic project faster and be successful. Another example of event is the opposition (reaction) of people (project team) in the new project management software installed during that period because they though it will increase the bureaucracy of project implementation.

The third level concerns the Powers that exist even when they are not causing events (Nilsen 2004). "The events are caused by the powers" (Nilsen 2004). This assumption necessitates the recognition of a third level of reality namely the real (Collier 1994). For example, based on these arguments, those powers (mechanisms) are associated with influence factors. Those factors are "subjects to be fully cognizant of all limitations of our mind" (Bhaskar 1978).

The data analysis of the events, through which the underlying powers or mechanisms are inferred, utilises the list of the factors discovered in theory (chapter 3). "They have no independent existence outside our thoughts" (Bhaskar 1978). For example, the decision of an implementation pathway, (based on participant's narratives) has behind powers that are associated to those factors.

For example, such a power from organisational point of view would be the competitive stress between firms. This is a common reality and causes the event (through organisational strategy and projects implementation processes,) of the decision of implementation route. The key decision criteria that is associated to previous power and event is "Assisting to the speed of strategic projects implementation", in case of urgent strategic projects. The organisational

influence factor associated to previous power and event is “Organisational strategy as the driver”.

Another example is the power of customer’s reaction in the quality of the products. This is a physical human characteristic, a mechanism that exists albeit it causes or not events. “Those beings exist regardless of human access to them” (Bhaskar 1978). The factors related in this power perceived as a key decision criteria (Achieve customers’ satisfaction), and organisational influence factors (The external and internal influence factors, Human Factor). This is to “adjust our cognition accordingly as we seek to understand the world as it actually exists (things-in-themselves)”, (Bhaskar 1978).

Therefore, the data analysis was performed on the [noemata] (the real meanings of participants’ narratives and their reciprocal relations with influence factors) in order to discover the reality that is beneath the surface of the appearance of things, and identify those factors and the various phenomena (described in the analysis chapter).

Using quasi-statistics analysis for KDF evaluation

Quasi-statistics defined the use of descriptive statistics that can be extracted from qualitative data. It is a tabulation of the frequency with which certain themes, relations, or insights are supported by the data. At the one end of the qualitative continuum are those who contend that validity for qualitative research should be interpreted in the same manner as for quantitative research (Miles et al. 1984). Using qualitative and quantitative techniques for analysis of data can strengthen the analysis (Hancock 2002).In light of the previous arguments, and to enhance objectivity and reflect the complexity of the data, quasi-statistics method is also incorporated in content analysis. Therefore, it is used as a means of validating and marking KDF.

The approach of data coding

The labeling (coding) of KDC and OIF factors was based on simple combinations of words. As a result, coding was performed using them as *keywords,* so that it was possible to identify differences or similarities. Such keywords were created to represent the core meaning of a KDF. Moreover, the codes themselves became more focused as the analysis proceeded. Those codes are illustrated in Appendix 8 in Table A8.1 and Table A8.2.

The process of data analysis in quasi statistics

Once the themes are structured, a textual description is written in which the researcher noted what phenomena the participants experienced and how to identify their relation with a KDF.
Quasi-statistics performed as a tabulation of the frequency and average of KDF in the data. Quasi-statistics counted the number of times those factors were mentioned in observational, in the documents and interview transcripts (qualitative data). During the analysis of an interview, the researcher was aware that the interviewee was using words and phrases that highlighted an issue of importance or interest to the research. This was isolated from the others. As Derrida (1976) stated, "There is nothing outside of the text." Therefore each phrase analysed if contains information of the codes. When an issue that had been mentioned reappeared in the same or similar words, then, it was noted.

The KDF evaluation and marking process

The marking process was according to frequency and intensity of KDF in the units of analysis (observation, interview and documents). Therefore, if a factor-related notion appeared frequently in the texts of the narratives or observations, documents, regarding KDC and OIF, it was feasible to measure how often it appeared. For this reason, enumeration used to provide evidence of marking process (Polit et al. 2004). Quasi-statistics were used to understand the power of each factor in the qualitative data. In other words, if a particular factor was found multiple times, this factor was considered a stronger finding than a factor that mentioned in a theme only a few times. Simple numerical results readily derived from the qualitative data.
Each line of data was examined to identify events and actions in data, and the researcher segmented them into smaller units. A manual matrix as database of information is constructed. Within each stimulus group for each unique KDC or OIF variable marked individually and the scores in matrix database are updated accordingly. The evaluations from all sources are entered into an Excel (2003) spreadsheet, and summarized. Therefore, the frequency of keywords but also the related "noemata" (meanings - notions) based on phrases analysis conducted in the texts to produce the scores of the KDC and OIF in the matrix. The "X" indicator applied on the KDF columns in the matrix database. Furthermore, the matrix framework is purified from evident overlaps and redundancies of the same participant, observations and documents. Such changes meant that different phrases are combined to form one single meaning of each KDF.
Finally, by using logical analysis of the matrix database of scores, the most frequent factors were revealed in the relative diagrams (Miles et al. 1994). Consequently, the assessment of KDC and OIF illustrated in Appendix 8, in Tables A8.1 and A8.2 and Figures A8.1 and A8.2.

How someone could do it differently?

The structural and textual descriptions used in quasi-statistics analysis are based on what Patton (2002, p. 267) describes as "*emic*" analysis in which the language and categories used by the participants are used to describe the themes and patterns that emerge from analysis. This is in contrast to "*etic*" analysis in which the words that describe the themes and patterns formed by the researcher and often resemble or utilize theoretical concepts and terms that the participants would not use in their own descriptions. According to the previous arguments, the analysis performed in data to mark the KDF used an "*emic*" approach. So the "noemata" (meanings) constructed from "*emic"* approach of analysis and the appearance of a KDF was then recognised. It is also important to note that the whole marking process performed using rational approach. However, another researcher might use the "*etic*" approach as it explained previously. In this case, probably might produce results with a little deviation in the final scores.

4.6 Chapter summary

This chapter considered aspects of methodology used in this research and, consequently, justified each aspect of the study. The use of qualitative method in this research resulted in a broad appreciation of the research subject. A description of the research methods and data analysis followed. The researcher used qualitative analysis on the transcribed interviews, documents and observation data. The methodology called for results from qualitative research based on the findings of literature review. Finally, the practical and technical aspects of conducting the research are presented. Chapter five presents the data analysis results using this methodology and chapter six presents the conclusions and implications of this research.

"There is no burden of proof. There is only the world to experience and understand. Shed the burden of proof to lighten the load for the journey of experience."
-From Halcolm's laws of inquiry, (Patton 1980)

Chapter 5 Qualitative data analysis

5.1 Introduction and chapter overview

The purpose of the qualitative data analysis is to discover and determine the *implementation route selection process* and to validate the *Key Decision Factor*s (KDF) identified in the literature. Initially, the two groups, the Key Decision Criteria (KDC) and the Organisational Influence Factors (OIF) emanated from theory assisted in the investigation. An additional objective was to identify the relationship or/and disagreement between observation and the interview data. The final goal was to develop and present the findings of route selection process while logically constructing its relationship to KDF. The chapter on data analysis consists of two sections. The first section illustrates how the implementation of strategic projects performed through the route-selection process. For this scope three case studies are analysed and presented. The next section contains the data analysis and justification of KDF. The analysis is based on all of the qualitative information: the eight interviews, the three observations, and the documentary data. Furthermore, this endeavor determines and explains the phenomena of route selection as they happened in practice. Figure 5.1 illustrates the process of qualitative data analysis in this chapter.

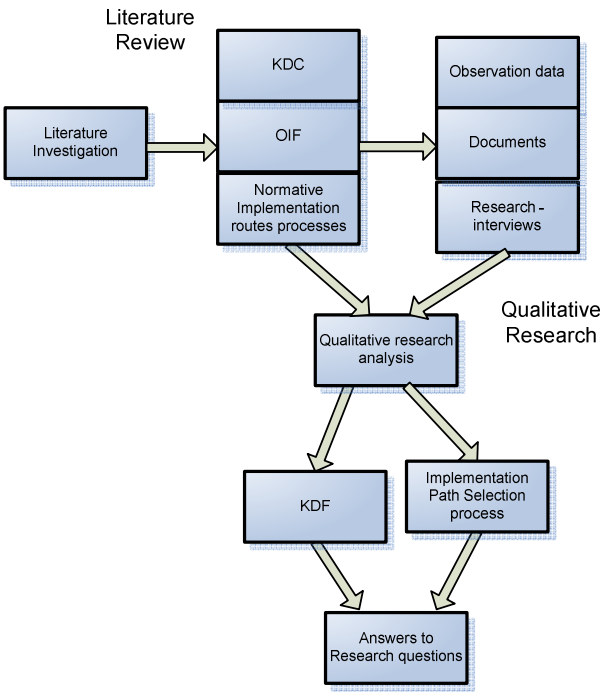

Figure 5.1 The qualitative data analysis process adopted in this study

5.2 Data analysis

Direction of analysis and production of transcripts

Current analysis is based on a selective transcription method to produce a written version of interviews, observations and information from documents, in a more structured way.

Furthermore to:

a) Illustrate the way the route selection process performed in practice in reflection with KDF.

b) Validate the KDF (KDC and OIF)

Grouping the qualitative data and creation of transcripts

Initially, the examples of implementation routes were identified, analysed and grouped from the participant's narratives. The discovery of the OIF and KDC in the texts, justified the routes that participants chosen and under what circumstances. Some of the participants' answers are presented (quotes) as evidence to support the direction of the influence of the factors under assessment.

All of the interviews were transcribed. The researcher took the interviews and made notes of incidents that contained information for use in further analysis and presentation. Consequently, the struggle was to identify from transcripts the informative extracts of data while also sorting out any important messages, in each interview, observation and documents information regarding the research subject.

Data Reduction

Data reduction methodology was helpful for condensing the research material into manageable units (Becker et al 1984). As Miles et al (1994) suggested, the data was reduced to sentence and multi-sentence chunks to enable data manipulation. The first level of analysis was to put the data description within a data-matrix (using Excel 2003), by interpreting the transcripts to draw out what was inferred or implied. Multiple versions of the same statement by the same respondent were eliminated from the matrix database (Becker et al 1984). The final information was analysed to construct the conclusions framework.

Data evaluation, categorisation, filtering and extraction of meanings

As a second step, there was a one-to-one link between the cases and the direction of analysis mentioned in previous paragraph. The analysis and evaluation of the meanings of the data underwent the filtering and assessment process. Specific *quotations* were selected to check strength of opinion or belief; similarities and differences among respondents; and the breadth of new ideas. To some extent, it is difficult to decide what data belongs where. However, this

was achieved by revisiting the data and reviewing the categorisation of sentences until the researcher was convinced that those categories used to summarise and describe the findings were appropriate in the specific assessment matrix. Figure 5.2 shows the evaluation and filtering analysis of meanings and extraction of information related to the research questions.

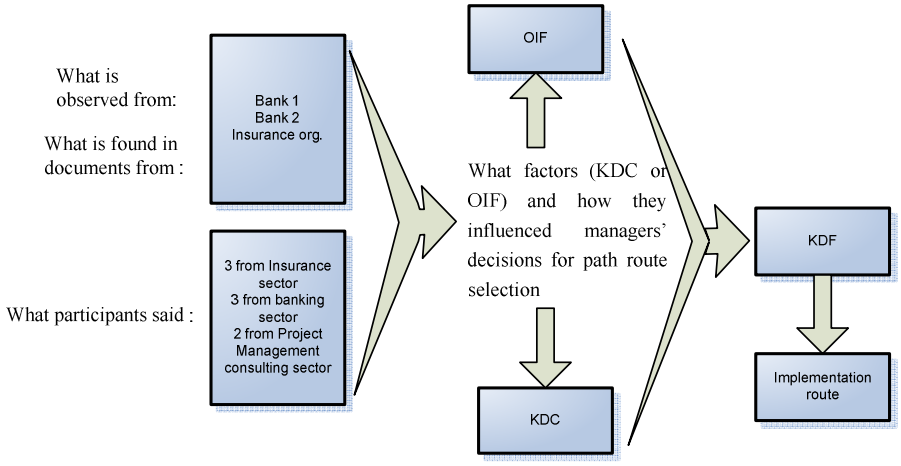

Figure 5.2 The strategy of data analysis

Research reliability and the difference between interviews and observation data

To determine reliability, the researcher should examine the possibilities and limitations of replicating the study. The evolving and inductive nature of qualitative research mitigates against identical replication. However the detailed transcription of information on influence factors through interviews and the sources of data from observation (case studies) enhances the possibility of replication.

The researcher established a rigorous methodology of continually comparing data. Furthermore, in order to identify the deviation level between interview and observation data, the Euclidean distance method is used in quasi-statistics analysis to depict their percentage agreement or disagreement. In addition, there was a comparison of total scores between interview and observation data per KDC and OIF. The calculation of difference between interviews and observation data is depicted in Appendix 8. Unfortunately the analysis of observation findings by quasi-statistics showed that they do not agree in 100% with those found in interviews (Table A8.3, in appendix 8). However, the comparison showed some small percentages of difference. Consequently, it is essential to understand that because the same researcher transcribed the observation and interview data, such a difference shows that there was not high level of bias during analysis for replication of findings under the same direction of concepts.

Data analysis

The analysis of interviews, observation and documents data revealed important information regarding the decision criteria and the factors that influence the route selection process. Furthermore, it revealed events and phenomena caused by background mechanisms. The choice of implementation route was found to be influenced by a range of factors and issues. (A sample of transcript is showed in appendix 9).

The following section of analysis presents three case studies based on observation data and documents, while interviewees' quotations and relative KDF quoted as evidence where appropriate. Moreover, the next section reveals how managers perceive KDF (influences and expectations), and how they weight and evaluate them in order to decide the implementation route of strategic projects.

The three case studies

1. The case of a mutant-hybrid PMC process using portfolio management and change of implementation route in the organisation of insurance sector due to KDFs

The organisation in this case is a local Greek branch of a privately-owned financial services group whose core business is insurance. The company is registered in another European country. With operations in 11 countries, the organisation has more than 25.000 employees and offers a full range of insurance products – Life and Non-Life and pension products, health insurance and services, asset management and banking. It also has shareholders from 8 countries. The organisation is intent on building an integrated, pan-European group consisting of market leaders in the territories in which it operates. The Group's direction is focused on building a European financial services group based on its core business, which can provide a competitive proposition to its stakeholders.

The following case emanated from observation and interview with a participant from the insurance sector. The case depicts the use of hybrid-mutant route through program and project management. It also describes the unexpected change of route during the implementation of a strategic project.

The insurance organisation frequently produced new products, based on customers' needs but also to keep a competitive advantage in the market. In this case, a new health-insurance product designed and was assessed as strategic project in front other similar projects. This was performed using the existing program management process which also played the role of portfolio management. This is characterised as a mutant form of program management process that borrowed features from normative portfolio management. This process was supported by real-time IT software. Portfolio managers were from marketing and actuarial departments. The prioritisation and grouping of any new products was performed against any

other proposals (from other internal divisions) but also with those that were already under development. Unexpectedly, the decision taken from managers was to proceed using a mutant implementation route rapidly. That route is perceived as a combination of existing mutant portfolio and program management processes.

The mutant-hybrid implementation route was an invention of a process that included some features from both program and portfolio management processes. The process was designed to meet the specific needs of the insurance organisation (in this case the OIF was: "*The organisational competitive advantage*"). Such a mutant process used any of the available information to group and controls a set of projects. It was used for planning their implementation by assessing their cost and priorities.

During the project implementation of new product, there was an unexpected event. A bankruptcy of another (smaller) company in the sector was decided by the upper management of the company. This caused the immediate change in organisational strategy direction (OIF: *The external influence factor)*. The portfolio of customers and company's branches was to be included in the insurance organisation portfolio, in front of strategic cooperation between organisations (OIF: *The upper management factor).* The action of merging customers' portfolio with the existing one was assessed as an urgent action "OIF: *Emergent strategy"*. On the other hand, the promotion of the new health-product was planned through that channel. Such a decision was characterised as a very urgent strategic project (OIF: *Urgent strategic projects).*

The strategic objectives and operational plans of the organisation changed because of the unexpected *external factor*. The new health-product under development was to be sold through the new market channel. That strategic change demanded new product specifications and practically was a total new urgent strategic project *(*Expectation: *Assist to speed up the strategic projects implementation)*. The new requirements were defined quickly by the development team. The current program-portfolio management process did not used in this case. The implementation route was changed to direct implementation (S4 route – direct project management) without any further assessment. The case which caused such an action was the KDF of an *urgent strategic project*. In this particular case observed the OIF: *change of strategic target during project implementation.* The result was direct project implementation. This route was different from the initial route.

2. The case of a mutant-hybrid PMC process using project management and change of implementation route in the 1st organisation of banking sector due to KDFs

The bank is a Greek branch of one of the world's largest financial institutions. The international bank has transferred its international experience, obtained through the cooperation with multinational companies, to servicing Greek industries and businesses.

The case depicts the use of a project hybrid-mutant route and describes the change from direct project to program management during the implementation of several projects.

The IT section of the company implemented IT projects to cover parts of the main organisational strategic plans. These projects included the implementation of new branches, IT infrastructure, and internet banking. All IT projects implementations followed the project management procedure (S4 route) adopted from the regional project office.

The branch faced an audit unexpectedly, regarding the active projects' budgets and expenses (Expectation: *Reflection and representation of investments)*. While various IT projects were in the implementation phase, the Greek branch was asked by the auditors to group and re-assess all IT projects and explain (justify) their profitability scope. The projects assessment was performed regarding the individual cost, time duration and the resources assigned. A mutant-form of program management was quickly established to support that demand. All IT projects were listed, analysed, and grouped accordingly. The results were communicated to auditors. The report indicated the status of the budgets assigned to those projects and their progress. The related expectations (as key decision criteria) discovered here are:"*Enable senior management to direct and control the implementation process", "Continuous evaluation of projects, acceleration of projects, revises, kill or de-prioritize"*. In addition, some projects were canceled *"Avoidance of low-value projects"* as other projects were inserted in that program plan.

The inference here is that the transition from direct project management (S4 route) used initially by the company to the program and project management (S2 route) caused because of an internal factor (the internal regional audit). The expectation that the managers had from this new route (program and project management), was to have the capability to manage more efficiently the IT projects' budgets, the time planned and the resources assigned (it is perceived as a KDC). The expectations revealed here (as key decision criteria) are:"*Have effective budget utilisation",* an *"Avoidance of project time overruns"*and an*"Effective resources utilisation and capacity plan", "Effective centralized management - focuses on the big picture"*.

The mutant-hybrid implementation route evidently included some features from both program and portfolio management processes. This mutant portfolio-program management process was designed to meet the specific needs of the company to pass the audit. The process used

any of the available information to group different sets of projects (individual programs), and planned their implementation by assessing their cost and priorities.

3. The case of a mutant-hybrid PMC process using other mechanisms and change of implementation route in the 2nd organisation of banking sector due to KDFs

That organisation is a central commercial bank with in Greece's newly decentralised financial cooperative sector. All 16 of Greece's cooperative banks and 13 credit cooperatives established a central bank to achieve economies of scale and to promote competition.

The following case was observed but also discussed during the interview with a participant in the bank. (IT project manager) That case depicts the use of a project hybrid-mutant route and describes the change of that route to program management during the implementation of several projects.

The bank was implementing various strategic projects using other than the normative project management process, (By other mechanisms and practices - S5 route). The key indicators of that route were OIF: *budget and time,* managed with flexibility. Departmental managers were appointed project managers and used their own methods, (because of OIF: low *project management maturity, and influence from the existing organisational culture).*

The requirement of using portfolio management process was raised because of the international financial crisis *(*OIF*:The external and internal influence factors).* All 16 Greek cooperative banks and 13 credit cooperatives asked for reduction of expenses and produced a strategic operational plan (OIF: *Operating planning).* The demand was the development of a profitability plan *(*Expectation: *Have effective budget utilisation)* to manage the projects' budgets *(*Control the *Projects cost),* across the organisation. The management teams implemented a central control mechanism *(*Expectation: *Effective centralized management - focuses on the big picture)* to have a clearer picture of projects and record and manage all their expenses. According to that plan, all new projects should be filtered through that process. Therefore, some projects were canceled and many other new projects from other departments rejected. Thus, the expenses management strategy *(*OIF: *Organisational strategy as the driver)* was successful, according to the participants. The mutant portfolio-program management process is used for months from the project managers. However, the strategic projects were implemented again through the S5 route. In fact, nothing was changed in the existing projects implementation process except for the new mutant portfolio-program management process. The latter process lasted for ten months and then was neglected and discontinued. The factor observed, was the low OIF: *Organisational maturity in project*

*management.*This factor caused the depreciation of mutant portfolio-program management process. Again the urgent strategic projects (OIF: *The organisational competitive advantage*, and *Urgent strategic projects)* were to be implemented as in the past.

Two changes in the implementation route were observed over time due to influence from that factors and expectations. Nevertheless, it is not the purpose of this study to examine the reasons why the organisation has not established the normative portfolio management process or the way it has discontinued the mutant process. The participants noted that such phenomena were observed in the company several times in the past. That particular case was an example of non-stabilised route selection process.

Issues discovered

The following issues (illustrated in table 5.1) are the significant phenomena revealed during investigation: 1) influence of urgent strategic projects; 2) development of hybrid-mutant routes; 3) retrace of implementation route used previously; 4) the intention of using the shortest route by creating a new combination of PM processes; and 5) the effect of project management maturity on regarding route decisions. Table 5.1 shows these issues and their relation to current theory.

Issue	**Theory (what theory says)**	**Case study 1**	**Case study 2**	**Case study 3**
The phenomenon of route change due to emergent strategy (an urgent strategic project)	Mintzberg (1994) argued that strategy emerges over time as intentions that the strategic targets should adapt always in the new situations. He stated that each strategic project implementation decision shapes what the company actually does. Milosevic et al (2006) stated that strategic projects targets might change. The unstable strategic situations led to a new approach of strategy implementation process. This provides strategic feedback that can lead to what Mintzberg (1994) calls emergent strategy. The more flexible an organisation is in this approach the better it can meet the differing needs. The latter argument chains the possibility of alteration of implementation route as a new strategic project emerges.	That behaviour was observed as unexpected change of route during the implementation of a strategic project. That was a bankruptcy of another (smaller) company in the sector. That caused the immediate change in organisational strategy. The portfolio customers and branches of that company decided to be inserted in the insurance organisation after a strategic agreement between the two organisations. The action of merging the new customers' portfolio with the existing was assessed as an urgent action "Emergent strategy". On the other hand, the promotion in the market of that new health-product was planned through the new channel. That action characterised as a very urgent and strategic project	That behaviour was observed as the strategic requirement to control the projects budgets and expenses. But it was not clear if it was an emergent strategic action or a deliberate strategy. A financial audit occurred unexpectedly by regional auditors regarding the IT budget and the relative expenses "Reflection and representation of investments". While various IT projects were in implementation phase, the Greek branch was asked to group and re-assess all IT projects and their profitability scope.	That behaviour was observed an urgent strategic requirement of controlling the projects budgets and expenses. The requirement rose due to recent international financial crisis. The demand was the development of a profitability plan "Have an effective budget utilisation" to manage the various projects' budgets "Project cost" across the organisation.

	It will help the organisation to control its course while encouraging the learning process, (Mintzberg, 1994, p. 23-25; Hax et al, 1996, p. 17). Although Morris et al (2004) identified strategic planning, portfolio management and emergent approach as important steps in the alignment of business strategy and project management.			
The phenomenon of hybrid-mutant implementation route	In normative project management theory, recognised that the implementations of strategic projects are mainly through the normative direction of project management. Organisational strategy perceived to be linked to portfolio through program management processes. Equally, those responses are consistent with the latest view expressed by Verzuh (2005) who classified those three tiers of management in his Enterprise Project Management Model (EPMM). In project management literature, organisational strategy is perceived as a portfolio of projects of integrated business strategies in many literature sources (PMI 2004, 2006, Kerzner 2003, Artto 2005, Cismil 2006, Grundy 2001, Morris 2004, Milosevic 2005 Hauc et al 2000). Similarly, the competencies for the PMC framework were assessed by Project Management Institute (PMI) in the OPM3 (2003) standard, called the "Organisational Project Management Maturity Model", has introduced the three model elements as sections of Portfolio Management, Program Management and Project Management. A more comprehensive view is presented by the United Kingdom's Association for Project Management BOK, which gives a fuller	That behaviour was observed as the existing program management process, played the role of portfolio management. That is characterised as a mutant form of program management process that borrowed features from normative portfolio management. The prioritisation and grouping of any new product was performed against any other products' proposals (from other internal divisions) and those that were already under development.	That behaviour was observed at the Greek branch that was asked to group and re-assess all IT projects and their profitability scope, therefore, a variant mutant-form of program management was established to cover up and support that demand. In addition that program management process was used then by upper management to assess the IT projects with the local organisation strategic operational plans. So, that process supported the portfolio management requirements.	That behaviour was observed due to recent international financial crisis. The upper management decided the reduction and control of expenses. The requirement was to adopt a central control mechanism that all new projects be filtered. That action in practice has features that characterise it non-normative but as a mutant portfolio management process.

	recognition of the business context where a strategic project resides, recognizing portfolio and program management as a key implementation processes. So far, a similar approach has been given by other authors in the latest literature where those processes have an important role to play in strategising (Aubry et al 2007, Kerzner 2003, Artto 2005, Cismil 2006, Grundy 2001).			
Retracing previous methods	In project management theory, recognised that the implementations of strategic projects are mainly through the normative direction of project management. Retracement is a rather uncommon word and it has many specialized definitions and no general meaning. In that case retracement also has special meaning wherein it means "to follow in the footsteps" of a previous succeeded way. For example many literature sources (PMI 2004, 2006, Cismil 2006, Grundy 2001, Morris 2004, Milosevic 2005 Hauc et al 2000) implied that conservative approach. On the other hand, managers behave at organisational environment not just down to their personality and particular skills. There are numerous contributory factors, including organisational structure and processes, and the overall business culture that produce such phenomena. Finally as it has its roots in knowledge management, "Lessons learned", containing digest of positive and negative experiences of project implementations, support the action of route retracement.			That behaviour was observed as the whole story lasted for ten months only. Then that mutant-portfolio process is neglected The factor was the "Low Organisational maturity in project management". Again the various urgent strategic projects decided to be implemented as before. According to participants' narratives, such incidents were happened again several times in the past.
The	In rational normative theory that	That behaviour was observed due to	That behaviour was observed due to	That behaviour was observed due to

phenomenon of following the shortest implementation route - combination of processes' features	phenomenon would be seen as improper but it has its roots in Critical Path Method (CPM). Many authors like PMI (2003-2009), Klastorin (2003), Heerkens,(2001), Kerzner, Harold (2003), Lewis (2002), Milosevic et al (2003), O'Brien et al (2010) and Woolf (2007), reported that technique in creating the shortest path in projects implementation. In that case, was the development of a shortest path by producing and use a mutant-hybrid process based on the combination of features from other project management processes.	development of a mutant short process to cover the requirement and demands of upper management. The implementation route was changed to direct implementation without any further assessment. The route followed for that urgent strategic project at the end was totally different from the initial route chosen. It was not a normative process as literature in the field describes but a combination of features that support the latter demand.	development of a mutant short process that was evidently a variant process that included some features from both program and portfolio management processes. The mutant-hybrid implementation route established was evidently a variant process that included some features from both program and portfolio management processes. That process was designed to meet the specific needs due to audit and the upper management requirements.	development of a mutant short process to cover the requirement and demands of upper management. It was not a normative process as literature in the field describes but a combination of features that support the latter demand.
Low or moderate level of maturity in project management - non-stabilised route selection.	Based on the PMI (2005), Pinto (2007) Kerzner (2003) and Tinnirello (2001) approach the maturity in project management as the implementation of a standard methodology and accompanying processes is depends on the level of maturity that an organisation performs. Moreover the study of Grant et al (2006), revealed the median level of project management maturity of today. In similar way Kerzner (2001, 2003) categorised PM maturity levels. The lowest the level the highest the misunderstanding and establishment of normative project management process. In addition Martinsuo et al (2007) related portfolio management success with organisational maturity in project management.	The moderate was observed due to development of a mutant process and as it was supported by a real-time IT system (software). In addition there were no trained portfolio managers, but they were the same managers from marketing and actuarial departments. Due to moderate level of project management maturity it led to direct project implementation of urgent strategic project, totally different from the initial route chosen.	That behaviour was observed due to change happened in the route from direct project management to program management during the implementation of several projects. Very fast a variant mutant-form of program management was established to cover up and support the demand of reflection and representation of projects investments. The mutant-hybrid implementation route established was evidently a variant process that included some features from both program and portfolio management processes. That indicates the low-moderate level of project management maturity.	That behaviour was observed due to development of a mutant portfolio short process. The Bank was implementing various strategic projects using other mechanisms and practices (S4) instead a normative project management process. In addition there were departmental managers baptized as project managers and performed using their own methods. Finally the mutant portfolio management process lasted only for ten months and then neglected. The route selection process was non-stabilised over time.

Table 5.1 Case studies issues and their relationship with current theory

The phenomenon of route change due to emergent strategy (an urgent strategic project)

Analysis revealed that the criteria for the selection of an implementation route depend on changes in the strategy target of a project. A relationship with emergent strategy developed when an organisation takes a series of actions (new product, profitability plan and audit). Such a change led to a mutant-hybrid non-stabilised implementation route.

The phenomenon of hybrid-mutant implementation route

The hybrid-mutant implementation route combines some features of the rational - normative project management processes. On the other hand, the attempt to use a rational implementation always had the possibility of alteration or modification. Those two options seem different but they are two aspects of the same process. They are locked in an unstable but mutual relationship, embedded on and overlapping. In essence, «hybrid-mutant» implementation route-logic could produce faster results as showed in practice. The question, however, is if organisations were engaged in a project management fallacy by building (rational and normative) models suited to strategic projects implementation, and then inappropriately modified them as «hybrid-mutant» ones.

The phenomenon of retrace of implementation route

In most cases, the route selection is performed based on experience from previous projects. Thus, if an implementation has been decided by the managers, to be achieved in a specific way any possible alternative routes may be eliminated early in the route selection process.

To retrace a route means to go back over it again and execute a new strategic project, using the same implementation route. In this case, the implementer mentally reassembles the previous experiences and uses the same logic for possible future implementation.

The phenomenon of following the shortest implementation route - combination of processes' features.

Another finding was to use the shortest route and least time for project implementation. For example, this could be happened because of an emergent strategy. In that case, participants suggested the shortest and simplest route. However, results from observations show that organisations prefer the shortest and simplest route and use a combination of implementation routes. That led to the creation of a mutant-portfolio and program management process.

(Low to moderate level of maturity in project management and non-stabilised route selection)

This phenomenon is reflected with the hybrid-mutant implementation route. The retrace of previous methods, by combination of project management processes' features are also involved in this phenomenon. Individual project, program and portfolio management selection activities can be measured in terms of organisational project management maturity level. In addition, such implementation route selection activity can be characterized as a non-

stabilised process. In this case, the three organisations seem to be at low and moderate levels of project management maturity. That phenomenon might produce unpredictable results, and it depended on retracement of previous implementation routes.

Data analysis of the Key Decision Factors

<u>Group 1: The Key Decision Criteria</u>

The key decision criteria indicate the expectations and criteria that participants discussed during the interviews. They also were found during observation of the three organisations and during the investigation of a series of documents.

Expectation: Use of appropriate methods models and tools at project and multi-project levels

According to interviewees from the banking and insurance sectors:*"We need the support from appropriate tools to implement our projects; if the process does not support that requirement, simply, can not be used"*. Interviewees from the PM consulting sector said: *"The process should support and adapt in the logic of development of what our customers asked for" "Sometimes we propose a taylor-made solutions to our customers"*. That part of analysis revealed the use of hybrid- mutant portfolio and program management observed support of the multi-project level requirements.

Expectation: Minimise uncertainty of projects implementation

Interviewees from the banking and insurance sectors stated*: "When we have an urgent project we need to face unexpected problems or issues; so we are making risk estimation and weekly revision of project plans"*. A participant from the insurance sector said*: «My opinion is that all strategic projects must be assessed first, before start any implementation. We have stopped many projects after some days because we had the uncertainty if we are in the right direction while in the meantime another urgent strategic project was initiated"*. Almost all interviewees agreed that uncertainty led them to use a route that could ensure results and minimise uncertainty of projects' implementation.

Expectation: Effective resources utilisation and capacity planning

That expectation was expressed by almost all interviewees. That was defined as the requirement to use a PM process to manage and share the resources among strategic projects. That implied the adoption of a program management process supplementary in their current project management process (routes S4 or S5). That rationally means to follow the normative program and project management (S2) route (according to PM consultancy participant's opinion). Nevertheless, in narratives from banking and insurance sectors interviewees, only

the S4 and S5 routes were used in practice. That means the resource management process was performed using a particular mutant-program management process. Moreover, that expectation was found to be interdependent with the "*human factor*" because very frequently the managers faced a lack of available resources to be assigned to projects.

Expectation: Assist in the speed of strategic projects implementation.

Interviewees from the banking and insurance sectors claimed that of several strategic projects required faster implementation. That requirement led to other pathways of implementation (for example the S5 route) to meet the deadlines. They also said: "*Our need was to have the product prepared before the end of this year; that was urgent and required extremely speed from IT development team and some other departments involved, to catch those dates, so it was perceived as an exception, and was out of our normal PM process*". Consequently, expectation was related to the emergent strategy.

Expectations: Effective organisational communication with strategic projects implementation

–- Have coherent communication between projects

Communication among the team members and between the project managers and upper management was observed in relation to organisational strategy and project success. In an interview, one participant from the banking sector stated: "*The project was implemented locally in my department. I'm not sure that others knew it or any other important information in detail. It was strategic in nature but was implemented in very short time duration and involved resources only from my department*". Interviewees linked communication to all project routes. That phenomenon was found in project documents reporting projects' communications, conflicts, and day-to-day interactions among team members. At the same time, communication was observed among departments during the implementation of projects in the insurance sector. Various indirect strategic projects were not known. Such projects were characterised as individual, local, and departmental and were excluded from the central portfolio process. That circumstance caused multiple projects from various departments of the organisation, for the same scope of work (according to interviewees). Interviewees from the banking sector stated that indirect projects, once discovered, were integrated into the program. The program then was communicated to upper management for action.

Expectations: Minimise the risk and avoidance of project failure- Avoidance of problems in the implementation routes

PM consultancy sector interviewees suggested that risk assessment should be performed in the beginning regardless of the final implementation route. However, the data from observation revealed that the risk management was performed occasionally and only in case

of a mutant program management. Furthermore, related information on risk assessment using a mutant portfolio management process was discovered in some documents. Interviewees from the PM consulting sector insisted that the type of risk assessment was a function their customers used although by mutant routes.

Expectations: Effective forecasting of capacity and budgets - Have effective budget utilisation - Maximisation of value of investments - Avoidance of project cost overruns - Reflection and representation of investments - Identification of cost and benefits

Almost all of the interviews saw budget as an important factor in the projects assessment phase. (Interviewees from the PM consultancy suggested using S1, S2 or S3 routes.) In addition the participants wanted to assess the correlation of budgets between the projects under implementation. Interviewees from the banking sector cited the requirement of continuous cost control of projects, especially during implementation. However, they also noted the requirement of cost correlations among interdependent projects in a program. They also pointed out the requirement to represent the strategic alignment and correlation between projects and the relative financial investments from a business point of view.

Expectations: Efficiency, simplicity, flexibility and scalability in implementation - Efficiency and effectiveness of implementation – integration of schedules

Interviewees from the PM consulting sector stated that those expectations came from their customers. In other words, PM processes had to be efficient, easy to use, and flexible. They stated: "*If the established project management process (means using one of the normative S1-S4 routes) is supporting those expectations they would adopt it, otherwise they preferred to use their own individual way*" (S5 or a mutant route).

Expectations: Effective centralised management - focuses on the big picture - Enable senior management to monitor, direct and control the implementation process

Almost all interviewees expressed the need for centralised control of projects. They suggested that the centralised picture of projects be visible to senior management. The interviewees from the PM consulting sector suggested the use of normative routes. Moreover, the program or portfolio management involvement and direction by senior management was considered a necessity. One participant from the insurance sector stated: *"The upper managers of our organisation wanted always to know the status of strategic projects, so asked for that report frequently"* A participant from banking sector noted: "*We had always changes in our projects by involvement of upper management; that sometimes was useful, but sometimes produced us disorder of tasks and uncertainty"*

Expectations: Manage a series of related projects designed to accomplish broad goals- Effective link projects with interdependencies

That expectation was observed in all organisations. In addition, some reports revealed the intention to integrate and group projects. On the one hand, interviewees from the banking and insurance sectors expressed the necessity of *linking the interdependencies between projects*. According to interviewees from the PM consulting sector, that is applicable only to portfolio and program management routes. Finally, as revealed from the case studies, it was performed by using mutant implementation routes.

Expectation: Establishment of a link with other areas and processes

That expectation is noted by both banking and insurance sectors interviewees and in all three organisations. Participants stated that during project implementation, several departments and functions could be involved, so communication had to be managed effectively. Observation revealed conflicts between departments and their local processes. The mutant program management processes used partially helped to group and to integrate projects (into programs – sets of projects); however, it not resolves conflicts between departments. That factor was also associated to organisational communication and culture. According to PM consulting sector interviewees, that could be achieved using the right tools within projects dependencies and appropriate risk analysis.

Expectation: Alignment of projects with organisational strategy

The interviewees from the PM consulting sector claimed that it could be achieved only using the normative portfolio management route. On the other hand, observation revealed better communication and a visible picture of projects in progress using a hybrid-mutant portfolio and program management process. The interviewees from the banking and insurance sectors stated that this was also main requirement of upper management. One participant said: *"In practice this is not applicable if various hidden projects are implemented around the departments, and there isn't always a central projects control; we are facing frequently such phenomena"*.

Expectations: Evaluation, categorisation and prioritisation of strategic projects - Avoidance of low-value projects- Continuous evaluation of projects, acceleration of projects, revises, kill or de-prioritize

The narratives of the interviewees from the PM consulting sector showed this to be a prerequisite. Such actions were observed in the three organisations and performed using mutant routes. The interviewees from the banking sector reported that obviously the evaluation of projects is achieved by those mutant portfolio-program management processes.

Those expectations perceived as interdependent with project management normative (S1-S4) routes.

Expectation: Avoidance of project time overruns

The interviewees from the banking and insurance sectors said that several projects missed their deadlines. Moreover, that expectation was interdependent with human factor and with the shortage of resources. According to interviewees from the PM consulting sector, time overruns were the result of various unexpected internal and external issues. Some of the issues could have been predicted using the risk management. However, unexpected conditions sometimes can also be handled if an appropriate process is established. Finally, this expectation perceived as interdependent with project management normative (S1-S4) routes

Expectation: Avoidance of project quality failures

That expectation has to do with project management quality issues. For example this is to avoid the wrong estimation of cost, time and resources for a project. But also is to check wrong estimation and analysis of project requirements. In turn this was found to have impact to project deliverables too. According to interviewees from the PM consultancy sector, such failures can be by using strict project quality control procedures. This is reflected in the selection of normative implementation routes (S1-S4). However, according to banking and insurance sector interviewees, that factor was linked to having appropriate quality control procedures.

Expectation: Reduction in administrative time (status reporting and facilitation)

According to the interviewees from the PM consultancy and banking sectors, that was a common requirement in almost all organisations. However, the reduction of administrative time could be achieved only by following a less bureaucratic administration of project during the implementation route. It is observed that the administrative reports were produced faster by using portfolio and program management software. Consequently, this expectation perceived as interdependent with the expectation of using appropriate tools at project and multi-project levels.

Expectations: Effective links between processes- Resolve inconsistencies and disconnects across projects

PM consultancy interviewees suggested portfolio and program management process (S1 or S2 routes) as the main route to meet that expectation. In practice, however, several combinations of the previous processes' features were used to resolve such the inconsistencies between

projects. The suggestion was to have a process to control the links between projects and assure the communication and anticipation of inconsistencies and disconnects across projects. This expectation perceived as interdependent with expectations of establishment of a link with other areas and processes, but also effective organisational communication with strategic projects implementation.

Expectation: Achieve customers' satisfaction

Customers' satisfaction was associated with a project's quality of deliverables, time and cost factors. According to interviewees from the banking and insurance sectors, that expectation was mutually dependent on the normative S4 and S5 routes. In regards to internal or external customers, that expectation had to do with quality and time issues of deliverables of strategic projects. According to the interviewees from the PM consultancy quality issues arose because of short deadlines and when the S5 is selected as implementation route. In addition, they suggested that quality issues could be handled by selecting the normative routes (S1-S5) and adopting strict quality control of project deliverables. This expectation is associated with expectation of assist in the speed of strategic projects implementation and resolve quality issues.

Expectation: Effective knowledge transfer

The criterion was to follow a route that offers appropriate documentation and effective communication of project knowledge. According to PM consultancy sector interviewees, that expectation is obviously associated with the selection of a normative route, but especially with S1-S4 routes. Effective knowledge transfer was achieved when an effective project documentation procedure was established. Finally, organisational communication factor was found to have a direct influence and role on that criterion. This expectation is related with expectation of coherent communication between projects.

Expectation: Effective management of multiple stakeholders

Effective stakeholders' management was a critical factor in the success of every strategic project. One participant from the insurance sector stated that: "*By engaging the right people in the right way in a project, makes a great difference and probably to succeed*". According to a participant from the PM consultancy sector, multiple stakeholders can be managed through effective program management. This expectation perceived as interdependent with expectations of establishment of a link with other areas and processes- Enable senior management to monitor, direct and control the implementation process.

Group 2: The Organisational Influence factors (OIF)

Organisational strategy

Organisational strategy was a critical factor in determining the spatial extent of selection patterns. According to the observation and interview data matrix frameworks of data analysis, it depended on several preceding decisions. This included different activities in reflection with KDC, the strategic prioritisation, with respect to strategic project's purpose. In some situations, interviewees implemented near the same strategic project (for example a new competitive product). Strategy was found to be the driver of route selection. If an urgent project had to be implemented as quickly as possible, a mutant route was used. This means to use the route through other mechanisms and practices but also use the combination of some features of normative project management process. In other case, such as deliberate strategic projects, mutant routes were again used to meet the needs of assessment, categorisation and prioritisation of projects.

The mix of tools, techniques and models of implementation direction.

The interviewees noted that they preferred an implementation process that offered flexibility and the tools to perform their tasks faster and better. Therefore, this influenced the managers' decisions to adopt an implementation route. One participant said: *"Are those PM processes really useful for what we want to do faster? "* Another position was that each normative route (S1-S4) offers "*flexibility*" if it is supported by the appropriate tools. "*We need the appropriate tools in order to implement the urgent projects rapidly*". In other words, the selection of the route is based having the tools, techniques and models to support the needs of the project and to implement the deliberate as well as the emergent strategy faster and easier.

Organisational maturity in project management

Project management maturity was an influence factor observed in all organisations. The more mature the organization, the better its use of PM processes. The three organisations used a mutant route to implement the strategic projects. They developed and struggled to adopt a variation of a normative project management process. As PM maturity increased, a mutant-program management process (S2) was used to integrate group projects and manage their resources. Finally, a mutant (S1) route used, but very rarely, when some external factors caused unexpected projects' deadlines. The interviewees said: *"In the beginning we were not capable to handle such a rational process (means portfolio management). We couldn't even use the basic tools and processes (means project management). We started with simple Gant charts and reporting features, and then we managed multiple projects in this way"*. The same view has been expressed from project management consultants for many other organisations.

Systems functional support

The decision to follow a route that depended on IT and operations functional support was also observed in the three organisations. One of the most critical dependencies of functional support mentioned during discussion was that on IT systems. According to the participants' narratives, if the PM process was not supported by an IT system with the right software tools, functions and applications, that route was soon abandoned. A participant said: *"It is obvious that if our IT system can not support the project management process we will not accept it"*. In addition, the interviewees from the insurance sector commented that there was no IT system to support the portfolio management; therefore, this process was not used rationally.

Organisational culture

The decision of implementation route was influenced by organisational culture. One participant stated: "*Our culture is not ready for such innovations yet (means the use of a rational portfolio management process) and there is a need of a lot of work to change people habits and conventions"*. The latter statement reveals that the selection of implementation route depended on cultural features. The organisations under observation represented characteristics of an aggressive culture. Though, this underlined the eventual high internal resistance to change and low levels of flexibility to follow the normative project management discipline.

Human factor

The effect of the human factor was observed in the interviewees' expressions and statements. Stories of project failure were associated with the human factor. For example the lack of input from users' during projects implementation in the insurance sector was blamed for various issues and problems. Interviewees also complained of the lack of resources and the shortage of mature project managers on strategic projects. This led organisations to resort to a mutant project management route. A participant claimed: «*We don't have the luxury of doing one thing, or one project at a time; we are working in parallel here, in many different projects. At least all those are in the same group, so those we have can handle them well until now"*. In addition, an important issue was observed in the insurance sector: the small percentage of trained professionals in normative project management processes. Therefore, projects were implemented using other practices. This situation was observed in both the banking and insurance sectors.

The project management knowledge

All of the organisations under observation were characterized by a lack of project management knowledge and skills in project managers. Moreover, the lack of essential skills

was cited as one of the most important reasons for projects failure. During interviews, the participants from the banking and insurance sectors said: *"There are no experienced project managers in our company; the project manager assigned in the project was the departmental manager"*. That factor was found to be interdependent with the human factor. PM consultancy participants wanted to establish and use a normative project management process. Knowledge and trained project managers were required, especially if they lacked experience. Without the appropriate training, this was an obstacle in the rational decision of a route. This explained the decision to use alternative mutant routes.

Organisational complexity and bureaucracy

That factor was characterised as a barrier during route selection. Today, products' complexity and bureaucratic departmental functions were found to be important. The participants acknowledged that: *"Project management with constraints is not applicable for us as we need more flexibility incase of implementations of urgent projects"*. *"There is a feeling that the company is not able to move fast enough, we're not delivering products fast enough or turning projects around fast enough if use the PM procedure"*, *"People feel that it's very difficult to get things done"*, *"There is a feeling that we're getting too bureaucratic during projects implementation"*. However, the previous quotes reveal that if the project management procedures are too bureaucratic, it would be an obstacle to choose a normative PM process.

Emergent strategy and urgent strategic projects

In the three organizations, predominantly different implementation routes decisions were taken during execution of deliberate strategic projects because of emergent strategy. Interviewees from all sectors stated: *"All other projects left behind if a strategic project characterised as urgent. The same was happened with implementation processes. They sat aside too. In this case the route followed was that with the most tangible and direct benefits of implementation, means time, cost and results"* This seems to be one reason why organisations followed the mutant route in cases of emergent strategy.

The change of strategic target during project implementation

Post forward to previous factor it is essential to understand how the interviewees understood the implementation route selection process with strategic projects targets changes. In terms of selection criterion for each participant regardless the point of view, choices varied. Furthermore, confusion was observed when strategic perspectives were changed. No attempt was made to define some rational form of optimal or standard route based on normative processes. Data analysis revealed that, for each organisational environment (banking and

insurance sectors), the selection criteria enforced as the strategic targets altered. However, in case where strategic direction changed, there was a remarkable change in implementation route decision. When that factor considered, a different route was chosen. On the other hand, the researcher observed that as more information about the strategic project became known, the orientation rule was violated and the implementer selected the more effective implementation route. For that reason, however, most of the interviewees indicated the mutant route. Some of the interviewees selected that type of route when the projects were large and critical.

The role of direct and indirect strategic projects

Some of the interviewees noted the need of various projects assessment came from internal organisational channels. Urgent strategic projects sometimes characterised as urgent and therefore the mutant route utilized. In some cases, the upper management assessed the projects practically by rules that developed ad hoc, to prioritise and categorise the various indirect projects. However, it was also referred: "*The indirect project needs to be assessed in order to identify the group of profitability plan or strategic projects belonged"*. It was obvious that factor led to selection of mutant portfolio management route, in order to support the ad hoc decisions of upper management.

The upper management

That factor had a direct relation with emergent strategy (urgent projects) and organisational political factors. One participant narrated: "*Even if we had adopted a normative project management process, the directions coming from upper management changed our priorities and sat aside any process in front of implementation of an urgent strategic project. They were directing us to faster implementation route (means to follow the mutant route in this case)"*. It is evident that such interventions, caused changes to implementation route selection process in practice.

The external and internal influence factors

In regards the external influence factors, an interviewee said: "A*t times the government regulations and the market turbulences (incidents like merges or consolidations) force our organisation strategy"*. Those were perceived as external (or internal) factors influencing the approach that strategic projects were planed and implemented. The interviewees determined as internal factors the departmental merges or restructures performed inside the organisation. Such events influenced by some means the implementation route decisions.

The type of organisation

In front of three types of organisation, namely: functional, matrix and projectized, none from the organisations under observation was found to be projectized. However, they could be characterised something between functional and matrix having low to moderate level of project management maturity. The interviewees from the PM consulting sector stated that projectized organisations were nearby to adopt the normative (S1) implementation route in contrast to other types which had the intension to adopt the mutant way continuously. The evidence here is the type of organisation seems to play an important role in implementation route selection.

Operating planning

The interviewees from the banking and insurance sectors noted that deliberate strategic plans were normally translated to projects. Subsequently, next step was to group and prioritise them. In addition, that factor was found interdependent with emergent strategy incidents. Though, in practice observed that most of operating plans were implemented by mutant routes. Therefore, in exceptional circumstances (of audit or expenses management) a combination of program and portfolio process established as a short-term solution.

Political factors

Political factors were found interconnected with upper management and organisational culture factors. The interviewees from the banking and insurance sectors revealed that politics influenced projects prioritisation. That means some projects were forwarded to implementation directly without further assessment. The interviewees from the banking and insurance sectors also said: "*Some projects, not strategic in nature, were implemented faster than others"*. The interviewees from the PM consulting sector revealed that in some of their clients *"those projects were excluded from portfolio management process too"*. This evidently shows that there was an unexpected change in projects priority affecting the implementation route.

The confusion among the Project Management Context (PMC) framework processes

This factor was found associated with organisational knowledge and maturity in project management factors. The interviewees from the PM consulting sector reported that the confusion between PM processes is related with human factor directly. They observed that phenomenon in small companies where PM processes misused. This is why that factor led them to use hybrid-mutant pathways.

Project cost

During observation and documents data review revealed that factor was interdependent with program and portfolio management routes. Strategic projects were found prioritised if they were urgent and strategically important but also the required budget was an important parameter. Such assessment was also performed in expensive projects but they had different treatment (for example an IT infrastructure change). According to interviewees from the PM consulting sector, project cost was a factor that led during time, to a more vigilant assessment process. That factor created the need to choose the central management of projects. The reason was to better control the projects' budget and investments.

Uncertainty - urgency and unexpectedness as factors

The interviewees from the banking and insurance sectors narrated stories of what happened in their organisations when the environment moved from relative stability and predictability to one of turbulence, uncertainty and continuous change. They explained the way they established a mutant project management process to handle those unexpected issues and manage better emergent strategy. That factor was found associated with urgent projects and external factors. One participant from banking sector commented*: "When something is unexpectedly urgent we're trying to find the best way to anticipate issues beyond any standard process as an exception". T*hey actually meant that they preferred a mutant route to encounter projects unexpectedness.

The organisational competitive advantage

The main explanation given from all interviewees about organisational competitive advantage was that achieved through the development of high value products and services. Competitive advantage factor was found interdependent with urgent strategic projects and associated with external factors. That factor defined as the organisation ability to implement emergent strategy effectively. Time, cost and quality perceived as critical elements of competitive strategic projects. The interviewees from the insurance sector commented: "*Project management caused better prioritisation and cost control for new strategic projects*". In other words it means that processes like portfolio management, might help significantly to align projects within competitive advantage strategic objectives.

Assessment of KDF (the organisational influence factors and the key decision criteria) in the text using quasi statistics

Becker (1970, pp. 81-82) coined the term "quasi-statistics to note the use of simple numerical results that can be readily derived from the data. He argued that one of the greatest faults in most observational case studies has been their failure to make explicit the quasi-statistical

basis of their conclusions. Quasi-statistics helped for the assessment of the amount of evidence in the data. As Lofland (1971) perceived it as the way of summarizing data.

In data analysis quasi-statistics used to analyse and present the findings of average scores and to count the number of times participants and observations' texts indicated an event that was reflected with a KDF (KDC or OIF as variables). They were searched in field notes and quotations as an estimation of frequency as well as a sense. It was counted how many times it is referred in the meaning in a paragraph or in a note. Furthermore, categories of scores produced per interview (P1-P8 - the eight interviews) and per observation (O1-O3 – the three observations plus the documents collected), to assess the differences between them. Furthermore, enumeration used to provide evidence if data are contaminated (Erickson, [LeCompte] 1992). The author believes that using quasi-statistics enhances the rigor and power of qualitative analysis.

Moreover, the data from interviews compared with field notes form documents, observations and vice versa. After systematic comparison of similarities and differences between codes and phrases, these were gradually grouped into potential categories, which were thereafter cross-compared in the matrix framework (in Excel 2003) used for this scope. The score assessment of KDF is illustrated in Appendix 8. In addition, quasi-statistics helped to construct more secure conclusions and analyze further the findings from a different point of view. The following table 5.2 illustrates as an example, the *first four KDF* with highest scores emanated from quasi-statistics analysis (Appendix 8).

	The two Groups of key Decision Factors (KDF)
#	**Group1: The organisational influence factors (OIF)**
1	Organisational strategy as the driver
2	The use of appropriate mix of tools, techniques and models of implementation direction.
3	Organisational maturity in project management
4	Systems functional support
#	**Group2: The Key Decision Criteria (KDC)**
1	Utilisation of appropriate methods models and tools at project and multi-project levels
2	Minimise uncertainty of projects implementation
3	Effective resources utilisation and capacity planning
4	Assist to speed up the strategic projects implementation.

Table 5.2 The first four Key Decision Factors of OIF and KDC groups with the highest scores in quasi-statistics analysis results (Taken from Appendix 8).

The list of the most dominant KDF revealed by quasi-statistics illustrated in table 5.2 implies that organisational strategy plays a vital role in route selection. In the same time the expectations of utilisation of appropriate methods models and tools at project and multi-

project levels seems to drive the decisions from another direction. The organisational maturity in project management also revealed as a considerable factor for the normative establishment of an implementation process. On the other hand, it is clear that the PMC framework requires the functional support from all other organisational identities. Moreover, addressing the uncertainty and at the same time manage with flexibility the short available resources, sound rational and indispensable in this era. Finally, the expectation of fast and promptly response in today's competitive market challenges shows the necessity of implementation route to support the organisational strength of strategic emergent enforcement.

5.3 Chapter summary

The chapter initiated with an introduction describing an overview and the process adopted for analysis of questions and participants responses. Furthermore a data reduction is performed to define the most important information for the qualitative analysis. From a similar perspective, data evaluation, filtering, extraction of meanings and grouping of findings was the next step to produce the data framework to be analysed. Three organisational cases were described to illustrate the nature and the utilisation of implementation routes in practice. In accordance, a discussion on KDF (the KDC and OIF groups) and the implementation route selection-process in practice took place. Further to this, the interviews, documents and observation findings regarding KDF were discussed in extent. Finally, quasi-statistic used for further evaluation and validation. Next chapter presents the conclusions and discusses the further opportunities of this research.

Chapter 6 Conclusions and implications

6.1 Introduction

This final chapter discusses the results from the research output described in data analysis and presents the findings. It presents the outcomes and their implications. Each outcome is given in the form of an answer to the research questions. Given that the final research question was, "What can we learn from this study?" this section translates the key insights into practical and academic contributions to the innovation of organisational project management. A section on those implications and potential actions by organisations follows the outcomes. In addition, this chapter draws on evidence from research findings and positions in relation to the broader literature and further research directions.

Objectives and structure of conclusions chapter

According to Creswell (1994) a qualitative study should end with comments that emerge from the data analysis. This chapter will cover the following areas:

- The research questions will be answered through the discussion of the alternative viewpoint that challenges the current thinking about the implementation route selection process. An understanding of the Key Decision Factors and their role in the implementation route selection process will be established.

- The researcher will explain the impact of the results and amendment of the Strategy Implementation Model (SIM).

- The third section presents the final conclusions and the implications from the research for organisations and contribution to PM practice. In addition, the contextual insights that the researcher gained from the study will be presented.

- Finally, directions for further future research will be discussed. In light of previous conclusions, additional research questions generated by this study will be discussed.

The researcher will use concise answers to the research questions posed at the outset of the study and provide conclusions in the following sections.

Generation of theory

According to Mintzberg, (1979) generating theory requires the researcher to make "a creative leap, however small, from data to theory". Theories are always abstractions and simplifications of a *complex reality* so it is necessary to simplify this richness. Thus, even if there was space to let the cases "speak for themselves," it would not be the best way of convincing reviewers. In regards to this research subject, what is critical in convincing the reviewers is to provide the linkages between raw data (the cases) and conclusions (the influences and the phenomena revealed during investigation). Reviewers should be able to see how the argument develops. This was based on the post-modern theory of "puzzling" out the relationship among reader, text, and world (Gilbert 2004). Therefore, research cases are used to generate theory. Finally, the results and the conclusions of this study can be evaluated within the arguments of Hart (2005, pp. 20-24) of "making a new contribution," "originality demonstration" and Philips et al. (1994), (the nine definitions of what it means to be original). That means, the discoveries of this study, regarding the implementation route-selection process and the Key Decision Factors, are unique in modern project management literature.

6.2 Discussion of the main findings

The route selection in practice, current issues and final conclusions will be presented in this section. The discussion of findings relies on logical deductions reliable and valid evidence emanating from the research analysis.

The route selection process in practice

The first research question of the study was:

1. Do managers use a rational systematic or an emergent intuitive approach when choosing a project implementation route?

The managers' intensions to act rationally and systematically based on the normative project management theory

Obviously the route selection task observed and experienced in real organisational environment is different from that which is described in project management theory. What is interesting, however, is the tendency of managers to want to follow the rational normative project management processes. Participants of business sectors said that there was always the intension to follow the normative project management processes, described in theory and the Project Management Body of Knowledge (PMBOK) books, however, in practice they were likely to limit further experimentation and quickly followed a hybrid-mutant (and because of time limits the shortest as well) implementation route. Usually such selection generally headed in the general direction of any other future implementations (retracement) in the same way.

The hybrid-mutant process

The phenomenon of hybrid-mutant process is based on the logic of using some of the features of project management processes selectively and partially. That means processes such as portfolio, program and project management were not adopted in the rational-normative way that was presented in theory. Moreover, the participants from the project management consulting sector reported that they had observed such phenomena in several organisations. Current research results and evidence based on observation revealed that the three case study organisations frequently used hybrid-mutant pathways for the implementation of strategic projects, but with the initial intension to follow the normative routes. This phenomenon might be explained by the low to moderate level of project management maturity, but other issues also affect the final decisions. This is evident as managers' choice of implementation route was influenced by a range of OIF and KDC factors. Those factors were identified and classified in ways that forced their final choices.

So, the second research question of the study regarding the influence factors was:
What factors do managers take into account when deciding what methods or pathways to use when implementing a strategic decision and what is their role and influence?

The question of what implementation route should follow was influenced by a range of key decision factors (OIF and KDC). The purpose of data analysis was to validate those factors and the criteria identified by literature review and listed in Tables 3.14 and 3.15. The choice scenarios used represented the actual decision making of managers under different conditions. Those factors and criteria found influencing the decisions of managers by inducing them to follow a hybrid-mutant route of implementation.

The Key Decision Factors

What are the OIF?

OIF are all those factors (Table 6.1) that according to managers' perceptions would positively or negatively affect the method of implementation of strategic projects. However the question that managers faced is how to manage them effectively. Consequently, these factors are reflected in and lead a range of criteria (KDC) which direct the selection of an implementation route.

#	**Organisational influence factors (OIF)**
1	The external and internal influence factors

2	Organisational strategy as the driver
3	The type of organisation
4	The role of direct and indirect strategic projects
5	The use of appropriate mix of tools, techniques and models of implementation direction.
6	The organisational competitive advantage
7	Emergent strategy
8	Operating planning
9	Organisational complexity and bureaucracy
10	The confusion between (PMC) framework processes
11	Political factors
12	Systems functional support
13	The upper management
14	Human factor
15	Project cost
16	Organisational culture
17	The project management knowledge
18	Uncertainty - urgency and unexpectedness as factors
19	Urgent strategic projects
20	Organisational maturity in project management

Table 6.1 Organisational influence factors

What are the KDC?

It is validated that they are the range of (potential) criteria (Table 6.2) that managers considered to determine the most suitable implementation route so, they could deal and manage more easily the related organisational influence factors.

#	**Group1: The Key Decision Criteria (KDC)**
1	Avoidance of implementation routes issues and problems
2	Assist to the speed of strategic projects implementation.
3	Have an effective budget utilization
4	Have coherent communication between projects
5	Effective knowledge transfer
6	Enable monitor the implementation process by senior management.
7	Effective resources utilisation and capacity planning
8	Effective forecasting of capacity and budgets
9	Effective links between processes
10	Effective links among projects with interdependences
11	Effective organisational communication in relation with strategic projects

	implementation
12	Alignment with organisational strategy
13	Establishment of a link with other areas and processes
14	Effective centralized management - focuses on the big picture
15	Evaluation, categorization and prioritization of strategic projects
16	Continuous evaluation of projects, acceleration of projects, revises, kill or de-prioritize
17	Reflection and representation of investments
18	Identification of cost and benefits
19	Minimize the risk and avoidance of project failure
20	Minimize uncertainty of projects implementation
21	Avoidance of project cost overruns
22	Avoidance of project time overruns
23	Avoidance of project quality failures
24	Avoidance of low-value projects
25	Reduction in administrative time (status reporting and facilitation)
26	Maximization of value of investments
27	Manages a series of related projects designed to accomplish broad goals
28	Efficiency and effectiveness of implementation – integration of schedules
29	Resolve inconsistencies and disconnects across projects
30	Effective management of multiple stakeholders
31	Achieve customers' satisfaction
32	Enable senior management to direct and control the implementation process.
33	Efficiency, simplicity, flexibility and scalability in implementation
34	Utilization of appropriate methods models and tools at project and multi-project levels

Table 6.2 The Key Decision Criteria

The criteria OIF and KDC (also known as KDF), that managers consider when choosing the most suitable project implementation route are assessed according to their perception. In this case, project success level has to be assessed if the expectations fulfilled at the end of the project implementation and such experience can drive the next route selection decisions. It was not within the scope of this study to identify the specific relationships between OIF and KDC. This would be a new opportunity for further research.

The third research question of the study was:

Once an implementation route has been chosen, do managers remain with that choice or do they alter their implementation route as a new strategic project emerges?

The route selection in practice

Figure 6.1 describes the route selection process observed in practice (observation of three case study organisations). Initially, the various organisational influence factors and criteria led managers to choose a route. Their purpose was initially to act rationally and systematically based on normative-rational routes supported in theory, but in practice, they used hybrid-mutant ways. Their choices were influenced by the various organisational issues and factors. However, during the implementation, if an emergent strategy or change in the status of a KDF took place, this led to reassessment of implementation route. In addition, the whole course of action was influenced by the tension to retrace of implementation route and make use of the shortest pathway due to emergent strategy. Time plays an important role on this fact. It is also important to note that the level of project management maturity played an important role as was affecting the final outcome of the selection process. Finally, based on the qualitative data analysis results, the route selection process was revealed as non-stabilized. It was found to be vulnerable to unexpected changes and issues occurred because of the unpredictable behaviour of organisational environment.

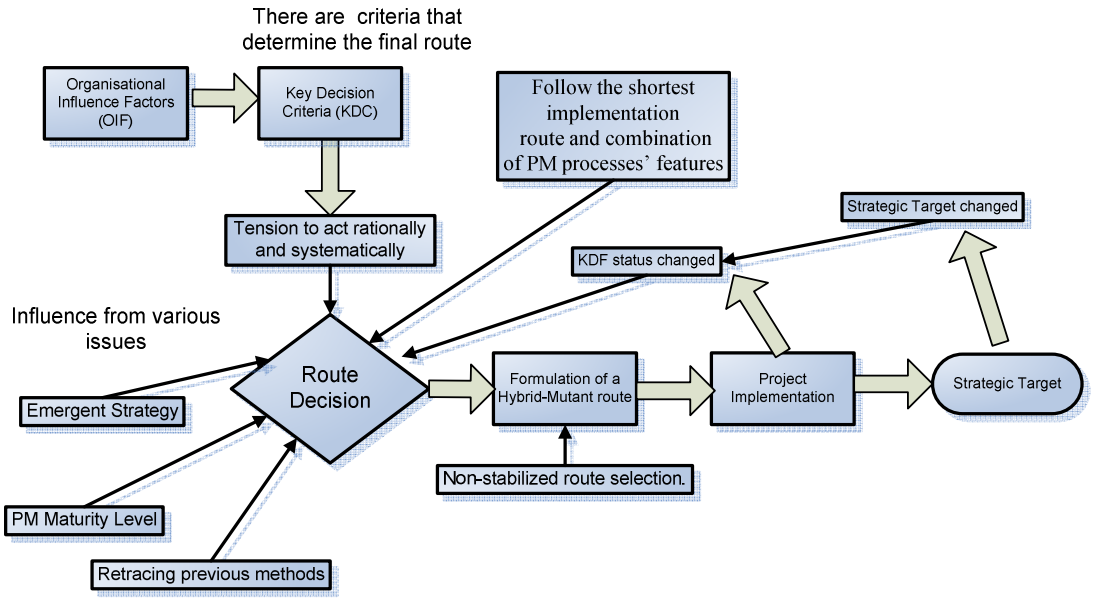

Figure 6.1 The Implementation Route Selection Process performed in practice

Amendment of Strategy Implementation Model (SIM)

The results allow for the drawing of practical conclusions, as well as further amendment of the SIM framework. The existing Strategy Implementation Model (SIM) developed in

Document 4 could be amended by incorporation of the route selection process. This new version of the SIM framework, illustrated in figure 6.2, presents separately the five normative implementation routes (S1-S5) and in addition the alternative "Hybrid-Mutant" (S6) route.

The Hybrid-Mutant route might be different, because it is always based on a combination of different project management features. Therefore it cannot be predefined and described in a more detailed and permanent structure.

Furthermore, the SIM framework contains two interrelated types of factors. The first type is the main PMC influence factors (identified in previous DBA documents) and the second type is the KDF which influence the route selection process. The whole process presented is controlled by The Project Management Office as well.

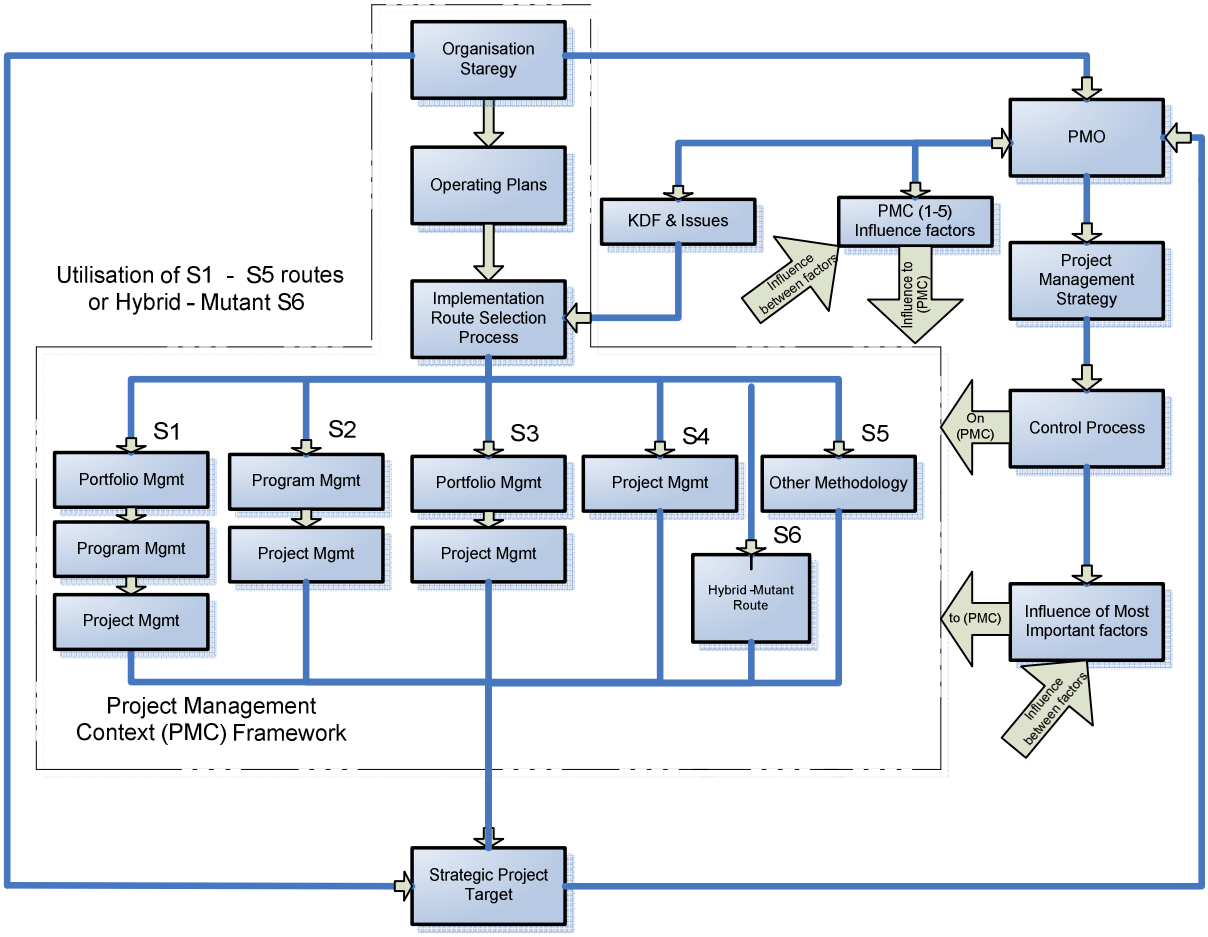

Figure 6.2 Revision and amendment of the "Strategy Implementation Model" (SIM)

This framework can be perceived as a feedback control system. The simultaneous and dynamic nature of all multiple interdependencies between the model elements and controls might offer some significant challenges for better implementations.

Answers to strategic question

The strategic question was: *Is it possible to develop a contingency model to choose the best project implementation route for a particular strategic project in a particular context?*

How could control an organisational chaotic system?

Chaos Theory is mentioned in Documents 3 and 4 to explain the unstable status of factors in organisational context. KDF a chaotic system whose behaviour is difficult to predict and because there are might be many other unknown factors, *therefore the creation of a contingency model is not possible*.

A number of distinct features, for example, randomness and nonlinearity, apparent disorder, characterize it; the motion of the KDF looks disorganised and erratic. Similarly, as Englund et al. (1999) argued, this seems like a mental model of linking projects to strategy and is like fractals and chaos theory. Factors change over time as does their level of influence. Therefore, the suggested approach of the feedback control system embedded in the SIM framework would assist in achieving some control. It might allow for the prediction of the probable behaviour of KDF, based on a rapid calculation of the impact of a wide range of elements. With sensitivity to initial conditions of a factor, even a small change might have a large effect on the rest of the system.

The overall conclusions

This section provides a synopsis of the conclusions based on the findings of the study.

In brief, the findings included:

- Theoretical identification and validation of the route selection process and associated KDF. In addition, quasi-statistics were used to rate and sort them).
- Presentation of the route selection process in practice and revision of the SIM framework (of Document 4).
- The discovery of a range of factors and interrelated issues that affected the selection process.
- The discovery of the unstable nature of the mutant-hybrid route

In the past, the literature focussed only on normative aspects of project management, such as how things should be done, and not enough on why project management is actually practiced. Prior research might have ignored the complex, hybrid and mutant behaviours of the implementation route. In addition, a range of KDF influenced the decisions of managers. This raises the possibility of unexpected change of implementation route due to emergent strategy.

This means that managers do not make *a priori* decisions (which mean they do not explicitly choose a permanent pathway) about what pathway to choose but the pathway changes with situations and expectations. The intension to act rationally and systematically and follow the normative theoretical processes exists but in practice is not applicable. For this reason, the pathways actually chosen might be always hybrid-mutant and non-stabilised. So, then, the initial hope of theory that pathways/routes can be rationally chosen and based on normative processes is undermined. This might be disappointing but seems a perfectly valid research finding.

The researcher is interested in the possibility of revising the theory of strategy implementation through the processes and the routes of project management context. The strengths of the present study are the identification of the hybrid-mutant approach and the interrelated KDF and issues. The latter argument provided further insights into the choice of appropriate strategic project management when faced with unexpected strategic challenges and situations (emergent strategy). At the same time, because of the small study sample, there might be some cases in which the implementation started using rational normative PM processes and was later transformed to hybrid-mutant ones. This assumption can be verified only through the investigation of a larger sample. Future research should, therefore, assess further industry particularities and specific organisational cases.

6.3 Research implications

Implication for organisations

The substantive vision of the DBA research (Documents 1-4), was to help in the identification of the links and the influencing factors between organisational strategy and project management. The results suggested that the investigation of the route selection process would add value to the study. The research results would assist organisations to implement strategic projects with more flexibility. The SIM framework is developed to assist understanding of strategic project implementation. It seems especially well suited for the modern projectized organisational environment. In addition, by understanding the role of the KDF and how they could determine the implementation best-fit implementation route, it would assist in more flexible implementations. The model might simultaneously be considered as a managerial tool for practitioners in project-based organisations.

Therefore, by increasing the understanding of route decision-making process, including noting the differences between strategic projects characteristics and organisational issues would assist in developing appropriate strategies and enabling them to better control and manage the emergent strategy requirements.

However, regarding the objective of contributing to the project management knowledge of organisational innovation, the researcher believes that the study adds a substantial amount of empirical evidence on project implementation, in the unpredictable and turbulent organisational competitive context. Furthermore, the objectivity and logic from pure realistic approach can be valuable. Within this approach, much value is given through the discovery of the intension to be normative and the final hybrid-mutant pathway chosen for the implementation. This argument is reflected in Kerzner's (2001) argument that strategic management is the development of a *methodology* for project management, a methodology that can be used over and over again, that will produce a high likelihood of achieving the project's strategic objectives.

Despite this distinction, however, the future intension is on how organisations can best develop innovative and flexible implementation capabilities as opposed to acquiring and assimilating rigid project management processes.

Contribution to theory of project management

Given the hegemony of modern project management approaches, and, more specifically, the theory of project implementation, the formal procedures are often illustrated with complexity of structure. The question is whether there should be changes to the theory of project management. There are several reasons for this, especially that these normative concepts of implementation are often too rigid encompass the complex dynamics of the environment, especially in the case of emergent strategy. The research outcomes give the reason and have implications for further theory revision and development. The research outcomes hope to improve understanding of the implementation route decisions, and contribute to increased knowledge in the area of further theory development.

In future, project management as a discipline, will be getting closer to the general management (emergent strategy, flexibility, competitive advantage) and organisational theory. On the one hand, project management needs the theoretical advances within these fields. On the other hand, management and organisational theory need an innovative and more flexible project management, as projects are becoming an integral part of modern business management in a number of industries and sectors.

Personal implications

From a philosophical point of view, current DBA research direction seems to be in line with the three forms of theory change. The first was associated with the work of Karl Popper, whereby *each theory subsumes the information of previous theories*. The second was

associated with the work of Thomas Kuhn, where *paradigms shift from one to another, rejecting some parts of the previous and subsuming some older parts to their new way of thinking*. The third was an attempt to outline the organisational chaos in reflection to that described by Paul Feyerabend: *Theories only partially related to previous theories and are unbounded and incoherently defined in some points.*

Furthermore, the primary scholarly implication of the research is the importance of continued research into the Project Management framework. This will reflect the organisational environment of strategic projects implementation. To the researcher's mind, it is neither the case nor the resulting theory that should be the exclusive focus of the research presentation. Rather, it is the learning process, the scientific wandering and the inspiration reaching through the case and conclusions. The research case and results are naturally part of this process, inspiring the researcher for further investigation in the field.

6.4 Opportunities and direction for further future research

A useful hypothesis allows prediction and within the accuracy of observation of the time, the prediction will be verified. As the accuracy of observation improves with time, the hypothesis may no longer provide an accurate prediction. In this case, a new hypothesis will arise to challenge the old, and to the extent that the new hypothesis makes more accurate predictions than the old, the new will supplant it (Kuhn 1962).

Based on previous argument, this section suggests opportunities for further research. However, there are many important directions in which such research should advance, both generally and in relation to current study results. Finally, the researcher has to pose some additional research questions, emerged from data analysis that need further research and investigation. The following questions should stimulate further research.

A) How do decision-makers prioritize KDF? This task requires or will reveal the criteria used in the process of prioritizing activities and the routes to be followed.

B) How consistent are the criteria of route selection as the strategic project target and purpose changes?

C) What is the relationship and reflection between the OIF and the KDC, in particular cases and organisations?

Finally, the quantitative research approach would help to additional verification of current research findings.

6.5 Chapter summary

This chapter has provided the conclusions and implications that emanated from the research. A summary of outcomes is provided in consideration of research issues and results through a discussion of the main findings and the answers to research questions. The main conclusion is that the theory and practice of the implementation selection process were different from each other. In fact, this is a "mutant-hybrid" implementation process. "We will find the way or will create it" (Anivas 247 - 183 BC). Furthermore, the role of Key Decision Factors is discussed. Moreover, the Strategic Implementation Model (SIM) is amended by incorporating the implementation route selection process found in practice. Yet, the implications of research to organisations and contribution to project management theory presented as along with the opportunities and direction for further research. Moreover, this study offered some interesting insights while providing additional questions of investigation and research. In conclusion, the research contributes to knowledge in the field of organisational innovation in the strategic projects implementation process while the body of knowledge, relating to project management implementation, is extended by proposing further future research on this topic.

"If we knew what we were doing, it would not be called research" – (Albert Einstein).

References

Ackermann F, Eden C, Williams T., (1997), Modelling for litigation: mixing qualitative and quantitative approaches, Interfaces.

Ackermann Fran, Williams Terry, Eden Colin,, Howick Susan (2002), The use of project post-mortems University of Strathclyde, Glasgow.

Allio Michael, (2005), A short practical guide to implementing-strategy, Journal of Business Strategy, Vol, 26 No, 4 2005, pp, 12-21, -C' Emerald Group Publishing Limited, ISSN 0275-6668.

Anderson David, Merna Tony, (2003), Project Management Strategy- project management represented, International Journal of Project Management 21 (2003), 387–393.

Anderson Erling, (2003), Understanding Your Project Organisation Character, PMI Journal Vol 34.

Anthony D. Scott, Mark W. Johnson, Joseph V. Sinfield, Elizabeth J. Altman, (2008), Mastering Emergent Strategies, Harvard Business Press Boston, Massachusetts.

APM, (2006), APM Body of Knowledge; 5th Edition, ISBN: 1-903494-13-3.

Aquino David, Burkett Michael, (2008), Product Portfolio Management in Apparel and Footwear: A Key to Inventory Efficiency, Industry Value Chain Strategies Service, AMR.

Argyris Chris, (1989), Strategy Implementation: An Experience in Learning, Organisational Dynamics 18 (Autumn 1989),

Artto KA, Dietrich PH., (2004), Strategic business management through multiple projects, In: Morris P, editor, The Wiley guide to managing projects.

Artto Karlos, Martinsuo Miia, Gemu¨nden Hans Georg, Murtoaro Jarkko, (2009), Foundations of program management: A bibliometric view, International Journal of Project Management 27 (2009), PMI.

Artto Karlos, Wikstro Kim, (2005), What is project business, International Journal of Project Management 23 (2005), 343–353.

Artto, K.A. J-M. Lehtonen and J. Saranen, (2001), Managing projects front-end: Incorporating a strategic early review to project management with simulation, International Journal of Project Management.

Aubry Monique, Hobbs Brian, Thuillier Denis, (2007), A new framework for understanding organisational project management through the PMO, International Journal of Project Management.

Avisona David, Jonesb Jill, Powellc Philip, Wilsond David, (2004), Using and validating the strategic alignment model, Journal of Strategic Information Systems 13 (2004), 223–246.

Ballstaedt, S.-P., Mandl, H., Schnotz, W. & Tergan, S.-O, (1981), Texte verstehen, Texte gestalten, München, Urban & Schwarzenberg.

Bamford James, Gomes-Cassere Benjamin, Robinson Michael, (2003), Mastering Alliance Strategy A Comprehensive Guide to Design, Management, and Organisation, John Wiley & Sons, Inc.

Banerjee Souvik Hopp Wallace J., (2001), The Project Portfolio Management Problem
Bang, H, (1988), Organisasjonskultur, Oslo: Tano A.S.

Bantel Karen, (1997), Performance in adolescent, technology-based firms Product strategy implementation and synergy, The Journal of High Technology Management Research, Volume 8, Number 2, pages 243-262, ISSN: 1047-8310.

Barnes David, (2001), Research methods for the empirical investigation of the process of formation of operations strategy, International Journal of Operations & Production Management,Vol. 21 No. 8, 2001, pp. 1076-1095.

Barton Leonard, Dorothy, and Deschamps, Isabelle, (1988), Managerial Influence in the Implementation of New Technology, Management Science 34 - 1252–1265.

Bhaskar, R.A., (1997), "A Realist Theory of Science," London: Version, ISBN 1-85984-103-1

Becker H., (1970), Sociological Work,New York, Free Press.

Becker, H.S., Gordon, A.C. & LeBailley, R.K., (1984), Field work with the computer: Criteria for assessing systems, Qualitative sociology.

Bednall David H.B., Michael J. Valos, (2005), Marketing research performance and strategy, International Journal of Productivity and Performance Management Volume: 54 Issue: 5/6 Page: 438 - 450 ISSN: 1741-0401.

Belout Adnane, (1998), Effects of human resource management on project effectiveness and success Toward a new conceptual framework, Internattonal Journal of Project Management Vol. 16, No. 1, pp. 21-26, 1998.

Benko Cathle, McFarlan Warren, (2003), Connecting the Dots: Aligning Projects with Objectives in Unpredictable Times, Harvard Business School Publishing, ISBN:1578518776.

Bennet, P. Lientz, Kathryn P. Rea, (1998), Project Management for the 21st Century, Second Edition, Academic Press, ISBN: 0-12-449966-X.

Benson Robert, Bugnitz Thomas, Walton William, (2004), from Business Strategy to IT Action Right Decisions for a Better Bottom Line, Wiley, ISBN 0-471-49191-8.

Bernard, H. Russell. (1988), *Research Methods in Cultural Anthropology*, Newbury Park, California: Sage.

Berelson, B, (1952), Content Analysis in Communication Research, Glencoe, Ill: Free Press.

Berry Maureen, Taggart James, (1998), Combining technology and corporate strategy in small high tech firms, Research Policy 26 1998.883–895.

Bhaskar, R, (1978), Realist Theory of Science, Wheatsheaf, Harvester.

Blichfeldt Bodil Stilling, Eskerod Pernille, (2008), Project portfolio management – There's more to it than what management enacts, International Journal of Project Management 26.

Blomquist Tomas, Müller Ralf, (2006), Practices, Roles, and Responsibilities of Middle Managers in Program and Portfolio Management, PMI Journal Vol 37, No 1.

Boar, B., (2001), The Art of Strategic Planning for Information Technology – 2nd Edition, Wiley, Chichester.

Boecker, Warren, (1989), Strategic Change: The Effects of Founding and History, Academy of Management Journal 32 - 489–515.

Bonoma, Thomas V., Crittenden, Victoria L, (1988), Managing Marketing Implementation, Sloan Management Review 29 - 7–14.

Bostrom, R. P., & Heinen, G., (1977), MIS problems and failures: A socio-technical perspective, MIS Quarterly.

Bourgeois L. J, (1980), Performance and Consensus, Strategic Management Journal 1 (July–September 1980): 227–248.

Bourgeois, L. J., and Brodwin, David R, (1984), Strategic Implementation: Five Approaches to an Elusive Phenomenon., Strategic Management Journal 5 - 241–264.

Bourne Lynda, Walker Derek H. T., (2006), Visualizing Stakeholder Influence Two Australian Examples, PMI Journal Vol 37, No 1.

Bresnen M, Edelman L, Newell S, Scarbrough H and Swan J, (2003), Social practices and the management of knowledge in project environments, International Journal of Project Management.

Brown, S. L., & Eisenhardt, K. M, (1995), Product development: Past research, present findings, and future directions, Academy of Management Review, 20(2), 343-378.

Bruce, C. D., (2007), Questions arising about emergence, data collection, and its interaction with analysis in a grounded theory study, Journal of Qualitative Methods, 6(1), Article 4.

Bryce Tim, (2006), Why Does Project Management Fail?, MBA.

Bryman, A., (1989), Research Methods and Organizational Studies, Unwin Hyman Ltd, Sydney.

Bryson, John M., and Bromiley, Philip, (1993), Critical Factors Affecting the Planning and Implementation of Major Projects, Strategic Management Journal 14 - 319–337.

BS6079-1996 - British Standard 6079, (1996), Guide to Project Management, UK: British Standard Institute.

CA, (2009), Organizations with Centralized Project Management Office (PMO), Consider it a Strategic Enabler of Business Change, European Survey, CA.

Calahan Kevin, (2004), Essentials of Strategic Project Management, Wiley (August 5, 2004),

Calori R., (2002), real-time/real-space research: connecting action and reflection in organization studies, Org Stud.

Carland, J. & Carland, J, (1990), Small Business Management - Tools for Success, PWS-Kent Publishing Co., Boston.

Center for Business Practices (CBP), (2008), CBP research reports: Troubled Projects- Project Failure or Project Recovery Web: www.cbponline.com.

Chaharbaghi Kazem, Willis Robert, (1998), Strategy the missing link between continuous reVolution and constant eVolution, International Journal of Operations & Production Management, Vol. 18 No. 9/10, 1998, pp. 1017-1027.

Chan Kim, Mauborgne Renée, (2005), Blue Ocean Strategy -Build Execution into Strategy, Harvard Business School Press,ISBN 1-59139-619-0.

Chapman Chris, Ward Stephen, (2002), Managing Project Risk and Uncertainty, John Wiley & Sons Ltd, Chichester.

Charvat Jason, (2003), Wiley - Project Management Methodologies, John Wiley & Sons, ISBN 0-471-22178-3.

Chebat Jean-Charles, (1999), Special Issue on Strategy Implementation and Assessment Research Research on Implementation Deserves as Much Attention as Strategy Formulation, Journal of Business Research 45, 107–109 (1999), ISSN 0148-2963.

Chemawat Pankaj, (2002), Competition and business strategy in historical perspective, Business History Review; Spring 2002, Platinnum Full text Periodicals.

Christensen M. Clayton, Donovan Tara, (2000), The Processes of Strategy Development and Implementation, innosight.

Chin Gary, (2004), Agile Project Management: How To Succeed In The Face Of Changing Project Requirements, AMACOM, ISBN:0814471765.

Cicmil Svetlana, (1997), Critical factors of effective project management, The TQM Magazine Volume 9 · Number 6 - 1997 · pp. 390–396 © MCB University Press · ISSN 0954-478X.

Cicmil Svetlana, (2006), Understanding Project Management Practice Through Interpretative and Critical Research Perspectives, PMI Journal Vol 37, No 2.

Cicmil Svetlana, Williams Terry, Thomas Janice, Hodgson Damian, (2006), Rethinking Project Management: Researching the actuality of projects,International Journal of Project Management.

CM Practice Standard Project Charter, (2002), Configuration Management Practice Standard Project Project Charter- article, PMI Project Management Standards Program, PMI.

Cormican, K. and O'Sullivan, D., (2003), "A collaborative knowledge management tool for product innovation management'', International Journal of Technology Management, Vol. 26 No. 1, pp. 53-67

Cooke-Davies, T.J., (2002), Establishing the link between project management practices and project success, Proceedings of the PMI Research Conference Seattle July 2002 PMI.

Cooper Dale F., Grey Stephen, Raymond Geoffrey, Walker Phil, (2004), Projects and Complex Procurements, Publisher: Wiley (December 17, 2004), ISBN-10: 0470022817.

Cooper R, Edgett S, Kleinschmidt E., (1997), Portfolio management in new product development: lessons from the leaders I. Res Technol Management.

Cooper, R. G., Edgett, S. J., & Kleinschmidt, E. J., (1997), Portfolio management in new product development: Lessons from the leaders: I. Research Technology Management.

Crawford LH., (2001), Project management standards: The Value of Standards, (DBA thesis), Henley-on-Thames: Henley Management College Brunel University. Daft, R. L., (1997), Management, 4th edn, Dryden Press, Orlando Fl.

Crawford Lynn, (2006), Developing Organisational Project Management Capability: Theory and Practice, PMI Journal Vol 37, No 3.

Crawford Lynn, Hobbs Brian, Turner J. Rodney, (2006), Aligning Capability with Strategy: Categorizing Projects to do the right Projects and to do them Right, PMI Journal Vol 37, No 2.

Crawford Paul, Bryce Paul, (2003), Project monitoring and evaluation a method for enhancing the efficiency and effectiveness of aid project implementation, International Journal of Project Management 21 (2003), 363–373.

Creswell, J, (1998), Qualitative inquiry and research design: Choosing among five traditions., Thousand Oaks, CA: Sage.

Creswell, J., (2005), Educational research: Planning, conducting, and evaluating qualitative research, Upper Saddle River, NJ: Merrill Prentice Hall Pearson Education.

Creswell, J. W., (1994), Research design: Qualitative and quantitative approaches. Thousand Oaks, CA: Sage.

Crittenden Victoria L., Crittenden William F., (2008), Building a capable organization: The eight levers of strategy implementation, Business Horizons (2008), 51, 301—309.

Datz Todd, (2003), How to Do It Right - Portfolio Management - portfolio management is key tool, CIO Magazine May 1,2003.

David Hodgson (2002), Three Tricks of Consciousness: Qualia, Chunking and Selection. Journal of Consciousness Studies 9 (12):65-88.

Denzin N.K., (1997), "Interpretive ethnography: Ethnographic practices for the 21st century", Sage, Thousand Oaks.

Denzin N.K., (2001), "Interpretive interactionism", Sage, Thousand Oaks.

Denzin N.K., (2002), "Social work in the seventh moment", Qualitative Social Work, Vol. 1 pp.25 - 38.

Denzin N.K., Y.S. Lincoln (2005), "Introduction: The discipline and practice of qualitative research", in N.K.

DeRijcke, Jacques, Faes, Wouter, and Vollering, Jan, (1985), Strategy Formulation and Implementation during Purchasing of Production Materials, Journal of Business Research 13 (1985): 19–33.

Derrida, Jacques, (1981), Positions, Trans. Alan Bass, Chicago: U of Chicago P, ISBN 978-0-226-14331-6.

Derrida, Jacques., (1976), Of Grammatology, Tr. by Gayatri Chakravorty Spivak, Baltimore: John Hopkins University Press.

Dess, Gregory G., (1987), Consensus on Strategy Formulation and Organisational Performance: Competitors in a Fragmented Industry, Strategic Management Journal 8 - 259–277.

Dess, Gregory G., and Origer, Nancy K., (1987), Environment, Structure, and Consensus in Strategy Formulation: A Conceptual Integration., Academy of Management Review 12 - 313–330.

DeWoot P., Heyvaert H., and Martou F., (1978), Strategic Management: An Empirical Study of 168 Belgian Firms, International Studies of Management and Organisation 7 (Winter 1977–78): 60–75.

Dietrich Perttu, Lehtonen Pa¨ivi, (2005), Successful management of strategic intentions through multiple projects – Reflections from empirical study, International Journal of Project Management 23 (2005), 386–391.

Dinsmore Paul, Cooke-Davies Terence, (2006), The Right Projects Done Right (A book review by R, Max Wideman), AEW Services, Vancouver, BC.

Dinsmore Paul, Cooke-Davies Terence, (2005), Right Projects Done Right From Business Strategy to Successful Project Implementation, Jossey-Bass (November 4, 2005), ISBN-10: 0787971138 ISBN-13: 978-0787971137.

Dinsmore, Paul C. Jeannette Cabanis-Brewin, (2006), The AMA Handbook of Project Management, Second Edition, AMACOM.

Dixon M., (2000), APM project management body of knowledge, 4th ed. Peterborough, England: Association for Project Management.

Dobni Brooke, (2003), Creating a strategy implementation environment, Business Horizons / March-April 2003.

Drazin, Robert, Howard, Peter, (1984), Strategy Implementation: A Technique for Organisational Design., Columbia Journal of World Business 19 - 40–46.

Drucker, P. F., (1994), 'The Theory of Business', In Harvard Business Review - Business Classics, Vol. Special issue, September - October 1994.

Duggal Jack S., (2009), “Program Management Is Crucial to Project Management’s Value”, PMI Community post, PMI USA.

Duggal Jack S., (2009), “Project or Program? You Decide“, PMI Community post, PMI USA.

Durante Blaise, (2009), Understanding Programs and Projects, (Acquisition Integration), U.S. Airforce.

Easterby Smith, M., Thorpe, R. & Lowe, A., (1991), Management Research, An Introduction, 5th edn. Sage Publications, London.

Eden, Colin, Williams, T.M., Ackermann, F.A., and Howick, S., (2000), On the Nature of Disruption and Delay (D&D), in major projects, Journal of the Operational Research Society 51, 3, 291 – 300.

Egelhoff, William G., (1993), Great Strategy or Great Strategy Implementation -Two Ways of Competing in Global Markets, Sloan Management Review 34 (Winter 1993): 37–50.

Elman Colin, (2006), Explanatory Typologies in Qualitative Analysis, Arizona State University.

Elonen S, Artto K., (2003), Problems in managing internal development projects in multi-project environments, International Journal Project Management.

Englund Randall, (2000), Linking Strategy and Portfolio at Front-end, PDMA/IIR conference on Portfolio Management for New Product Development in Ft., Lauderdale, January 2000.

Englund, Randall L. and Robert J. Graham., (1999), From Experience: Linking Projects to Strategy, Journal of Product Innovation Management.

Engwall M, Jerbrant A., (2003), The resource allocation syndrome: the prime challenge of multi-project management, International Journal Project Management.

Engwall M., (2003), No project is an island: linking projects to history and context, Res Policy.

EPSRC, (2005), Rethinking Project Management, Interim Report -May 2005-, (EPSRC Network 2004-2006),

Epstein Mark, Manzoni Jean-Francois, (1998), Implementing Corporate Strategy From Tableaux de Bord to Balanced Scorecards, European ManagementJournal,Vol. 16 No. 2 pp. 190-203, 1998.

Erickson Frederick, (1992), Event Analysis/Microanalysis: Ethnographic microanalysis of interaction, In M. LeCompte, et. al. (Eds), The handbook of qualitative research in education (chapter 5), San Diego: Academic Press.

Ervin Suzan and Bower T. Robert, (1952-53), Translation Problems in International Surveys, Public Opinion Quarterly, Vol 16, No4. Winter 1952-53.

Evaristo R, van Fenema PC. (1999), A typology of project management: emergence and eVolution of new forms, International Journal Project Manage.

Ferns, D. C, (1991), Developments in programme management, International Journal of Project Management.

Finch Curt, (2009), The Top 6 Things to Consider When Choosing a PPM Solution, www.projectsmart.co.uk.

Firestone JM., (2008), On doing knowledge management, Knowledge Management Research & Practice.

Fisher, Colin, (2004), *Researching and Writing a Dissertation for Business Students*, FT. Prentice Hall.

Fleming Quentin, Koppelman Joel, (1998), Earned Value Project Management- apowerfull tool, CROSSTALK The Journal of Defense Software Engineering, Issue: July 1998.

Floyd, Steven W., and Woolridge, Bill, (1992), Managing Strategic Consensus: The Foundation of Effective Implementation, Academy of Management Executive 6 - 27–39.

Forrester Research, (2009), New Report: Project Portfolio Management Can Deliver 281% ROI- May 2009, Forrester Research.

Freeman Melissa, de Marrais Kathleen, Preissle Judith, Roulston Kathryn, and St. Pierre Elizabeth A., (2007), Standards of Evidence in Qualitative Research: An Incitement to Discourse, Educational Researcher, Vol. 36, No. 1, pp. 25–32 DOI: 10.3102/0013189X06298009.

Fricke Scott, Shenhar Aaron, (2000), Managing multiple engineering projects in a manufacturing support environment, IEEE Transactions on Engineering Management, Vol. 47, No. 2, May 2000.

Fricke SE, Shenhar AJ., (2000), Managing multiple engineering projects in a manufacturing support environment, IEEE Trans Eng Management.

Frigenti Enzo, Comninis Denis, (2002), The practice of project management, Kogan Page US.

Gaddie Shelley, (2003), Enterprise programme management Connecting strategic planning to project delivery, Journal of Facilities Management ISSN: 1472-5967 Year: 2003 Volume: 2 Issue: 2 Page: 177 – 191.

Gaertner, Gregory H., Gaertner, Karen N., and Akinnusi, David M., (1984), Environment, Strategy, and the Implementation of Administrative Change: The Case of Civil Service Reform, Academy of Management Journal 27 (1984): 525–543.

Galbraith, J. R. (1979), A change process for the introduction of MIS: a successful case, TIMS Studies in Management Science.

Galliers, R. & Leidner, D.E (1999, 2002), Strategic Information Management: Challenges and Strategies in Managing Information Systems, Editions 2 & 3, Oxford: Butterworth-Heinemann.

Gaughan Dennis, (2005), Portfolio Management: A Market on the Verge, Market Service: IT Management and SOA, AMR.

Getto Gerhard, Landes Dieter, (1999), Risk Management in Complex Project Organisations, A Godfather-driven Approach, Proceedings of the 30th Annual Project Management Institute 1999 Seminars & SymposiumPhiladelphia, Pennsylvania, USA: Papers Presented October 10 to 16, 1999.

Gilbert Stephen, Brown Dobrin, Sidney I., (2004), Ethnography Unbound: From Theory Shock to Critical Praxis, State University of New York Press.

Ginzberg, M. J., (1978), Steps towards more effective implementation of MS and MIS, Interfaces.

Glaser, B. G. Strauss A. L., (1967), The discovery of Grounded Theory: Strategy for qualitative research, Ladine, New York.

Godfrey, P.C. and Hill, C.W., (1995), “The problem of unobservables in strategic management research”, Strategic Management Journal, 16, 519-533.

Godfroij, A., (1981), Netwerken van organisaties: Strategieën spelen, structuren, Vuga, 's-Gravenhage.

Goldman C., (1999), Align drive – expert advice.CIO Mag.

Gottschalk Petter, (1999), Implementation of formal plans the case of information technology strategy, Long Range Planning, Vol. 32, No. 3, pp. 362 to 372, 1999.

Govindarajan, Vijay., (1988), A Contingency Approach to Strategy Implementation at the Business Unit Level: Integrating Administrative Mechanisms with Strategy, Academy of Management Journal 31 (4), - 828–853.

Grant Kevin, Pennypacker James, (2006), Project management maturity an assessment of project management capabilities among and between selected industries, IEEE Transactions on Engineering Management, Vol. 53, No. 1, February 2006.

Gratton Lynda, (1996), The missing link human resources and business strategy, The Antidote Issue 1, Winder Perspectives.

Gray RJ, Bamford PJ., (1999), Issues in programme integration, International Journal Project Management.

Gray Roderic J., (1997), Alternative approaches to programme management, International Journal of Project Management Vol. 15, No. 1, pp. 5-9.

Green Stephen, (1995), Top management support of R&D projects a strategic leadership perspective, IEEE Transactions on Engineering Management, Vol. 42, No. 3, August 1995.

Greer Michael, (2006), What's Project Portfolio Management (PPM), & Why Should Project Managers Care About It?, The URL is http://www.michaelgreer.com.

Griffin, R.W., (2005), Fundamentals of Management: Core Concepts and Applications, 4th ed. Boston: Houghton Mifflin Co., 2005, ISBN 0618472428.

Grinyer P., and Norburn D., (1978), Planning for Existing Markets: An Empirical Study., International Studies of Management and Organisation 7 (Winter 1977–78): 99–122.

Grundy Tony, (1997,1998), Strategy implementation and project management, International Journal of Project Management Vol. 16, No. 1, pp. 43-50, 1998.

Grundy Tony, (2000), Strategic project management and strategic behaviour, International Journal of Project Management 18 (2000), 93±103.

Grundy, Tony, (2001), Strategy Implementation through Project Management, Thorogood, ISBN:1854182501.

Guba, E. G. and Lincoln, Y. S. (1994), "Competing paradigms in qualitative research", in Denzin, N.K, and Lincoln, Y. S. 1994, Handbook of Qualitative Research, Sage, Publications, Thousand Oaks, 105-117.

Gunnigle Patrick, Moore Sarah, (1994), Linking Business Strategy and Human Resource Management Issues and Implications, Personnel Review, Vol. 23 No. 1, 1994, pp. 63-84. © MCB University.

Gupta, Anil K, (1987), Strategies, Corporate-SBU Relations, and SBU Effectiveness in Strategy Implementation, Academy of Management Journal 30 (1987): 477–500.

Gupta, Anil K., and Govindarajan, Vijay, (1984), Business Unit Strategy, Managerial Characteristics, and Business Unit Effectiveness at Strategy Implementation, Academy of Management Journal 27 (1984): 25–41.

Guth, William D., MacMillan, Ian C., (1986), Strategy Implementation versus Middle Management Self-Interest, Strategic Management Journal 7 - 313–337.

Hajime Eto, (1991), Classification of R&D organisational structures in relation to strategies, IEEE Transactions on Engineering Management, Vol. 38, No. 2, May 1991.

Hambrick, Donald C., and Guth, William D., and MacMillan, Ian C., (1986), Strategy Implementation versus Middle Management Self-Interest, Strategic Management Journal 7 - 313–337.

Hamel G., Prahalad K., (1989), Strategy - Strategic Intent, Harvard Business Review, May-June 1989.

Hamel, G., & Prahalad, C. K., (1996), Competing for the future, Harvard Business Review.

Hamel, G., (1996), Strategy as reVolution, Harvard Business Review.

Hammonds Keith, (2001), Big Ideas, Fast Company Media Group, LLC http://www.fastcompany.com/learning.

Hancock Beverley, (2002), An Introduction to Qualitative Research, Division of General Practice, the Trent Focus Group, University of Nottingham.

Hanford Michael F., (2004), The Program Management Method, IBM Rational SUMMIT.

Hauc Anton, Kovac Jure, (2000), Project management in strategy implementation experiences in Slovenia, International Journal of Project Management 18 (2000), 61-67.

Haughey Duncan, (2008), What is Project Portfolio Management, Project Smart, www.projectsmart.co.uk.

Haughey Duncan, (2009), A Practical Approach to Project Management, Project Smart 2009.

Hax, A. C. & Majluf, N. S. (1996), The Strategy Concept and Process, A Pragmatic Approach, Upper Saddle River, NJ: Prentice Hall.

Heide Morten, Granhaug Kjell, Johannessen Simen, (2002), Exploring barriers to the successful implementation of a formulated strategy, Scand, J. Mgmt, 18 (2002), 217–231.

Heerkens, Gary (2001), Project Management (The Briefcase Book Series), McGraw–Hill, ISBN 0-07-137952-5.

Helm Jane, Remington Kaye, (2005), Effective Project Sponsorship An evaluation of the role of the executive sponsor in complex infrastructure projects by senior project managers, PMI Journal Vol 36, No 3.

Hill, W. L. Charles, Gareth R. Jones., (2001), Strategic Management Theory, Fifth edition, Houghton Mifflin Company, Boston – New York, ISBN: 0-618-07146-6.

Holsti, O.R., (1969), Content Analysis for the Social Sciences and Humanities, Reading, MA: Addison-Wesley.

Hölttä-Otto Katja, Magee Christopher, (2006), Estimating factors affecting project task size in product development-an empirical study, IEEE Transactions on Engineering Management, Vol. 53, No. 1, February 2006.

Hrebiniak L., and Snow, C. C., (1982), Top Management Agreement and Organisational Performance, Human Relations 35 (December 1982): 1139–1158.

Hrebiniak Lawrence, (2006), Obstacles to Effective Strategy Implementation, Organisational Dynamics, Vol. 35, No. 1, pp. 12–31, 2006.

Hurt, Chris, (2005), Doing a Literature Review, Sage Publications, ISBN: 0-7619-5975-0.

Hussey, David, (1998), Strategic Management: From Theory to Implementation, Fourth Edition, Butterworth-Heinemann , ISBN:0750638494.

Ian Maclachlan, (2004), Jacques Derrida: Critical Thought, Ashgate Publishing Company ISBN: 07546-0806-9.

IBM Office of Government Commerce, (2003), OGC: HMSO, "Managing Successful Programmes.
Iedema R, Degeling P, Braithwaite J and White L (2004), 'It's an interesting conversation I'm hearing': the doctor as manager Organization Studies, ISBN-10: 0471649856 -ISBN-13: 978-0471649854.

Jaafari Ali, (2003), Project management in the age of complexity and change, PMI Journal Vol 34, No 4.

Jeffery M, Leliveld I., (2003), Best practices in IT portfolio management, Sloan Manag Rev 2003.

Jeffreys H., (1961), Theory of Probability, 3rd edition, Oxford, Clarendon Press.

Johnson G, Scholes, K and Whittington R (2005), Exploring Corporate Strategy Prentice Hall.

Joia Luis Antonio, (2000), Measuring intangible corporate assets Linking business strategy with intellectual capital, Journal of Intelectual Capital, Vol. 1 No. 1, pp. 68-84.

Kalkavage, Peter, (2007), The Logic of Desire: An Introduction to Hegel's Phenomenology of Spirit, Philadelphia: Paul Dry Books.

Kaplan Robert and David Norton, (1996), The Balanced Scorecard: Translating Strategy into action, Harvard Business Review, January-February 1996.

Kaplan Robert, Norton David, (2001), The Strategy-Focused Organisation, Harvasrd Business School Press, ISBN: 1-57851-250-6.

Kaplan, R. S., & Norton, D. P., (1996), Using the balanced scorecard as a strategic management system, Harvard Business Review.

Katz Jack, (1983), Analytic Induction: A theory of qualitative methodology, In R. M. Emerson -(Ed.), Contemporary field research, Prospect Heights, Ill.: Waveland.

Klastorin, Ted (2003), Project Management: Tools and Trade-offs (3rd ed.), Wiley, ISBN 978-0471413844.

Kerzner Harold, (2001), Strategic Planning for Project Management, John Wiley & Sons, ISBN 0-471-40039-4.

Kerzner Harold, (2003), Project Management A Systems Approach To Planning Scheduling And Controlling (8 Ed), John Wiley & Sons, ISBN:0471225770.

Kerzner, H and Cleland, D I.,(1985), Project Matrix Management Policy And Strategy Van Nostrand Reinhold, New York.

Kezsbom Deborah, et al., (1989), Dynamic Project Management, John Wiley & Sons.

Klein Stuart, (1996), A Management Communication Strategy for Change, Journal of Organisational Change Management, Vol. 9 No. 2, 1996, pp. 32-46, © MCB University Press, 0953-4814.

Knutson Joan, Bitz Ira, (1991), Project Management, AMACOM Books ISBN: 0814450431.

Knutson Joan, (2001), Project Management for Business Professionals, John Wiley & Sons, Inc., ISBN: 0 471 38033 4.

Kreiner, K., (2002), ‘‘Tacit knowledge management: the role of artifacts’’, Journal of Knowledge Management, Vol. 6 No. 2, pp. 112-23.

Krippendorff, K., (1980), Content Analysis: An Introduction to Its Methodology, Newbury Park, CA: Sage.

KwakYoung Hoon,Anbari Frank T., (2009), Availability-Impact Analysis of Project Management Trends: Perspectives From Allied Disciplines, Project Management Journal June 2009.

Lance Ayerst, (2006), Project Centric without Project Management, PLC Partners.

Leavitt, H. J., (1965), Applied organizational change in industry: structural, technical and humanistic approaches, in March, J. G. (ed.), Handbook of Organizations.

Leonard, D. and Sensiper, S., (1998), ‘‘The role of tacit knowledge in group innovation’’, California Management Review, Vol. 40 No. 3, pp. 124-5.

Levene RJ, Braganza A., (1996), Controlling the work scope in organisational transformation: a programme management approach, International Journal Project Management.

Lewis, James (2002), Fundamentals of Project Management (2nd ed.), American Management Association, ISBN 0-8144-7132-3.

Liao Ziqi, Greenfield Paul, (2000), The synergy of corporate rd and competitive strategies An exploratory study in australian high-technology companies, The Journal of High Technology Management Research, Volume 11, Number 1, pages 93–107.

Littler Kevin, Aisthorpe Phil, Hudson Robert, Keasey Kevin, (2000), A new approach to linking strategy formulation and strategy implementation: an example from the UK banking sector, International Journal of Information Management.

Lofland John, Lofland Lyn H., (1995), Typological Systems Analyzing social settings, 3rd ed., Belmont, Cal.: Wadsworth.

Lofland, J., (1971), Analyzing social settings, Belmont, Ca.: Wadsworth.

Lofland, John, and Lyn Lofland, (1995), Analyzing social settings: A guide to qualitative observation and analysis, 3rd ed, Belmont, CA: Wadsworth.

Longman Andrew, Mullins James, (2004), Project Management a key tool for implementing strategy, Journal of Business Strategy, Vol. 25, No. 5, 2004, pp. 54-60, ISSN 0275-6668.

Lorange Peter, (1998), Strategy implementation the new realities, Long Range Planning, Vol. 31, No. 1, pp. 18 to 29,1998.

Luecke Ritsard, (2003), Strategy - Managing Change and Transition, Harvard Business School Publishing Corporation, ISBN 1-57851-874-1.

Luftman J. et al, (1996), Competing in the Information Age: Strategic Alignment in Practice, Oxford University Press.

Luoma Mikko, (2000), Investigating the link between strategy and HRD, Personnel Review,Vol. 29 No. 6, 2000, pp. 769-790.

Lycett M, Rassau A, Danson J., (2004), Programme management: a critical review, International Journal Project Management.

Lynham Susan A., (2002), Advances in Developing Human Resources: Quantitative Research and Theory Building Dubins Method, Vol. 4, No. 3 August 2002 242-276, 2002 Sage Publications.

Markowitz, H. M., (1952), Portfolio selection, Journal of Finance, 7(1), 77−91.

Markus, M. L., (1983), Power, politics and MIS implementation, Communications of the ACM.

Markus, M. L., & Robey, D., (1983), The organizational validity of management information systems, Human Relations.

Martin Julian, (1992), Francis Bacon: The State and the Reform of Natural Philosophy.

Martinelli Russ, Jim Waddell, (2005), Program Management Linking Business Strategy to Product and IT, Intel Corporation.

Martinsuo Miia, Lehtonen Paivi, (2006), Role of single-project management in achieving portfolio management efficiency, International Journal of Project Management 25 (2007), 56–65.

Martinsuo Miia, Hensman Nicole, Artto Karlos, Kujala Jaakko, Jaafari Ali, (2006), Project-Based Management as an Organisational Innovation: Drivers, Changes, and Benefits of Adopting Project-Based Management, PMI Journal Vol 37, No 3.

Massingham Peter, (2004), Linking business level strategy with activities and knowledge, Journal of Knowledge Management, Vol. 8 No. 6 pp. 50-62.

Maxwell, J. A., (1996), Qualitative research design: An interactive approach, Thousand Oaks, CA: Sage.

Maylor Harvey, (2001), Beyond the Gantt chart Project management moving on, European Management Journal Vol. 19, No. 1, pp. 92–100, 2001.

McAdam Rodney, Bailie Brian, (2002), Business performance measures and alignment impact on strategy The role of business improvement models, International Journal for operations and Production Management, Vol. 22 No. 9 (2002), pp. 972-996.

McCray Gordon E., Purvis Russell L., McCray Coleen G., (2002), Project Management Under Uncertainty: The Impact of Heuristics and Biases, PMI Journal Vol 33, No 1.

McElroy William, (1996), Implementing strategic change through projects, International Journal of Project Management Vol. 14, No. 6, pp. 325-329.

McManus John, Wood-Harper Trevor, (2008), A study in project failure,BCS.

Meta Group, (2002), The business of IT portfolio management: Balancing risk, innovation and ROI, Meta Group white paper.

Meta group, (2004), key statistics of PPM implementation, Meta group quarterly snapshot, January 2004.

Metaxiotis Kostas, Zafeiropoulos Ioannis, Nikolinakou Konstantina, Psarras John, (2005), Goal directed project management methodology for the support of ERP implementation and optimal adaptation procedure, Information Management & Computer Security Vol. 13 No. 1, 2005 pp. 55-71.

Mikkola Juliana Hsuan, (2001), Portfolio management of R&D projects implications for innovation management, Technovation 21 (2001), 423–435.

Miles, M. B., & Huberman, A. M., (1994), Qualitative data analysis, 2nd ed., Newbury Park, Cal.: Sage.

Miller Bruce, (2002), Linking Corporate Strategy to Project Priority and Selection, PMI Symposium, Chicago, Illinios, September 30, 1997 Last reviewed for content relevancy January 2002.

Miller Susan, Wilson David, Hickson David, (2004), Beyond Planning Strategies for Successfully Implementing Strategic Decisions, Long Range Planning 37 (2004), 201–218.

Miller, D. C. & Salkind, N. J., (2002), Handbook of Research Design and Social Measurement, 6th edn. Sage Publications, London.

Milosevic D, Patanakul P., (2005), Standardized project management may increase development project success, International Journal Project Management.

Milosevic Dragan Z., Martinelli Russ, Waddell James M., (2007), Program Management for Improved Business Results, John Wiley & Sons, ISBN: 978-0-471-78354-1.

Milosevic Dragan, Srivannaboon Sabin, (2006), A Theoretical Framework for Aligning Project Management with Business Strategy, PMI Journal Vol 37, No 3.

Milosevic, Dragan Z., (2003), Project Management ToolBox: Tools and Techniques for the Practicing Project Manager, Wiley, ISBN 978-0471208228.

Mintzberg H., (1994), Strategy - The Fall and Rise of Strategic Planning, Harvard Business Review Jan-Feb.1994.

Mintzberg, H., (1994), The Rise and Fall of Strategic Planning, New York, NY: The Free Press.

Mintzberg, H., & Waters, J. A., (1985), Strategies, deliberate and emergent, Strategic Management Journal, 5.

Mintzberg, Henry, Ahlstrand, Bruce W., Lampel, Joseph., (1998), Strategy safari: A guided tour through the wilds of strategic management, Free Press (New York), ISBN 0684847434.

Mintzberg Henry and Waters A. James, (1985), Of Strategies, Deliberate and Emergent, Strategic Management Journal, Vol. 6, No. 3 (Jul. - Sep., 1985), pp. 257-272, John Wiley & Sons.

Morris Peter W. G., Pinto Jeffrey K., (2004),Strategic business management through multiple projects The Wiley Guide to Managing Projects, John Wiley & Sons.

Morris Peter, Jamieson Ashley, (2004), Linking Corporate Strategy to Project Strategy via Portfolio, Project Management Institute.

Morris, P. & Hough, G., (1987), The Anatomy of Major Projects, Wiley: New York, Chichester, UK.

Morris, P. W. G., (1994), The management of projects, London: Thomas Telford.

Morris, Peter and Ashley Jamieson, (2004), Translating Corporate Strategy into Project strategy: Realizing Corporate Strategy Through Project Management, PMI, Project Management Institute.

Mouritsen J, Larsen HT and Bukh PN., (2001), Intellectual Capital and the 'Capable Firm': Narrating, Visualising and Numbering for Managing Knowledge Accounting, Organisations and Society.

Newell Sue, Tansley Carole, Huang Jimmy, (2004), Social Capital and Knowledge Integration in an ERP Project Team: The Importnace of Bridging AND Bonding, British Journal of Management, Vol. 15, S43-S57 (2004),

Nielsen, Richard P, (1983), Strategic Planning and Consensus Building for External Relations—Five Cases., Long Range Planning 16 - 74–81.

Nilsson Fredrik, Rapp Birger, (1999), Implementing business unit strategies the role of management control systems, Scand J. Mgmt. 15 (1999), 65-68.

Noble Charles, (1999), Building the Strategy Implementation Network, Business Horizons.

Noble Charles, (1999), The Eclectic Roots of Strategy Implementation Research, 45.119–134, Elsevier Science Inc.

Nonaka I., (1994), A Dynamic Theory of Organizational Knowledge Creation, Organization Science.

Nonaka, I. and Takeuchi, H., (1995), The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation?, Oxford University Press, Oxford.

Nonaka, I., Totama, R. and Nagata, A., (2000), ‘‘A firm as a knowledge-creating entity: a new perspective on the theory of the firm’’, Industrial and Corporate Change, Vol. 9 No. 1, pp. 1-20.

Noy Eli, (1998), Total business strategy - the missing link, Long Range Planning, Vol. 31, No. 6 pp. 927 to 932, 1998.

Nutt, Paul C, (1983), Implementation Approaches for Project Planning., Academy of Management Review 8 - 600–611.

Nutt, Paul C., (1986), Tactics of Implementation, Academy of Management Journal 29 - 230–261.

Nutt, Paul C., (1990), Strategic Decisions Made by Top Executives and Middle Managers with Data and Process Dominant Styles, Journal of Management Studies 27 - 173–194.

O'Connor, J. & McDermott, I., (1997), The Art of Systems Thinking: Essential Skills for Creativity and Problem-Solving, San Francisco: Thorsons Publishing.

O'Brien, James J.; Plotnick, Fredric L., (2010), CPM in Construction Management, Seventh Edition. McGraw Hill, ISBN 978-0-07-163664-3.

Office of Government Commerce (OGC), (2007), Program and Project management, http://www.ogc.gov.uk/programmes___projects_introduction_to_programmes.asp.

OGC, (2003), Managing successful programmes, UK: Office of Government Commerce OGC, The Stationery Office.

Olavson Thomas, (1999), EES&OR483 Ver 3.0 Project - Generic Strategy- Types of Competitive Advantage, Stanford University Dept. of Engineering-Economic Systems & Operations Research.

Olsson O.E. Nils, (2006), Management of flexibility in projects, International Journal of Project Management 24 (2006), 66–74.

Oltra M.J., Maroto C., Segura B., (2005), Operations strategy configurations in project process firms, International Journal of Operations & Production Management Vol. 25 No. 5, 2005 pp. 429-448.

Oshri I, Pan SL and Newell S., (2005), Trade-offs between knowledge exploitation and exploration activities, Knowledge Management Research & Practice.

Palmer Mike, (2002), How an effective project culture can help to achieve business success: Establishing a project culture in Kimberly-Clark, Industrial and commercial training, Vol 34, No3, pp 101 – 105.

Partington D., (2000), Implementing strategy through programmes of projects in: Turner JR, Simister SJ, editors, Gower handbook of project management, Aldershot: Gower.

Partington David, Pellegrinelli Sergio, Young Malcolm, (2005), Attributes and levels of programme management competence an interpretive study, International Journal of Project Management 23 (2005), 87–95.

Patton Michael Quinn, (1980), Qualitative evaluation methods, Sage Publications.

Patton, M. Q. (2002), Qualitative research and evaluation methods, Thousand Oaks, CA:
Sage.

Payne JH, Turner JR., (1999), Company-wide project management: the planning and control of programmes of projects of different type, International Journal Project Management.

Pellegrinelli S, Bowman C., (1994), Implementing strategy through projects, Long Range Plann.

Pellegrinelli S, Partington D, Hemingway C, Mohdzain Z, Shah M., (2007), The importance of context in programme management: an empirical review of programme practices, International Journal Project Management.

Pellegrinelli S., (1997), Programme management: organising project based change, International Journal Project Management.

Pellegrinelli Sergio, Partington David, Hemingway Chris, Zaher Mohdzain, Mahmood Shah, (2007), The importance of context in programme management: An empirical review of programme practices, International Journal of Project Management 25.

Peter Checkland, (1981), Systems Thinking, Systems Practice, (Wiley), ISBN 0-471-27911-0.

Peter Checkland, Jim Scholes, (1990), Soft Systems Methodology in Action, (Wiley), ISBN 0-471-92768-6.

Pietersen William., (2002), Reinvetming Strategy: Using Strategic Learning to Create and Sustain Breakthrough Performance, John Wiley & Sons, Inc., ISBN 0-471-06190-5.

Pinto, Jeffrey K., and Prescott, John E., (1990), Planning and Tactical Factors in the Project Implementation Process, Journal of Management Studies 27 - 305–327.

Pinto Morris, (2007), The Wiley Guide to Project Technology, Supply Chain, and Procurement Management, Wiley, ISBN 978-0-470-22682-7.

Pinto Morris, (2007), The Wiley Guide to Project Organization and Project Management Competencies Wiley, ISBN 978-0-470-22683-4.

Pinto Morris, (2007),The Wiley Guide to Project Control, Wiley, ISBN 978-0-470-22684-1.

The Wiley Guide to Project, Program, and Portfolio Management, Wiley, ISBN 978-0-470-22685-8.

Platje A, Seidel H., (1993), Breakthrough in multiproject management: how to escape the vicious circle of planning and control, International Journal Project Management.

Porter E. Michael, (1998), Competitive Strategy - Michael Porter, The Free Press.

Porter Michael, (1985), Competitive Advantage, The Free Press, NY.

Porter Michael, (1987), From competitive advantage to corporate strategy, Harvard Business Review, May-June 1987.

Porter Michael, (1996), What Is Strategy, Harvard Business Review, (November-December 1996), 96608.

Porter, E. Michael., (1980), Competitive Strategy, Macmillan Publishing Co., Inc.

Porter, M. E., (1991), Towards a dynamic theory of strategy, Strategic Management Journal.

Priem, Richard L., (1990), Top Management Team Group Factors, Consensus, and Firm Performance, Strategic Management Journal 11- 469–478.

Polit DH, Beck CT, (2004), Nursing Research: Principles and Methods, 7th ed., Philadelphia, Pa: Lippincott, Williams & Wilkins.

Project Management Institute, PMI, (2003), A Guide to the Project Management Body of Knowledge (PMBOK Guide), 2003 Edition, Project Management Institute.

Project Management Institute, PMI, (2003), OPM3, Organisational Project management Maturity Model, Project Management Institute.

Project Management Institute, PMI (2004), A guide to the project management body of knowledge, Pennsylvania, USA: PMI.

Project Management Institute, PMI, (2006), The Standard for Portfolio Management, Global Standard 2006 First edition, ISBN: 1-930699-90-5.

Project Management Institute, PMI, (2006), The standard for Programme Management, Global Standard 2006 First edition, ISBN: 1-930699-54-9.

Project Management Institute, PMI, (2009), A Guide to the Project Management Body of Knowledge (PMBOK Guide), 2009 Edition, Project Management Institute.

Raby Michael, (2000), Project management via earned value, Work Study Volume 49, Number 1 .2000, pp. 6±9 # MCB University Press , ISSN 0043-8022.

Rapert Molly Inhofe, Velliquette Anne, Garretson Judith A., (2002), The strategic implementation process: Evoking strategic consensus through communication, Journal of Business Research 55 (2002), 301– 310.

Reichert, K. S. & J. M. Lyneis., (1999), The Dynamics of project performance:benchmarking the drivers of cost and schedule overrun, European ManagementJournal.

Reisman Catherine K., (1993), Narrative analysis., Newbury Park, Cal.: Sage.

Reiss G., (1996), Programme management demystified: managing multiple projects successfully, London: E&FN Spon.

Ringuest, J., & Graves, S., (1999), Formulating R&D portfolios that account for risk, Research Technology Management.

Roberts, E. B., (1992), Strategic Management of Technology: Global Benchmarking, 10 December, Results of a survey sponsored by the Massachusetts Institute of Technology, Cambridge, Mass., and PA Consulting Group, London, England.

Robey, D., (1987), Implementation and the organizational impacts of information systems, Interfaces.

Sandy William, (1991), Avoid the Breakdowns between Planning and Implementation, Journal of Business Strategy 12 (September/October 1991): 30–33.

Saunders, M., Lewis, P. & Thornhill, A., (2000), Research Methods for Business Students, 2nd edn, Pearson Education.

Schaffer, Robert H., (1988), The Breakthrough Strategy, Harper Business.

Scholey Cam, (2005), Strategy maps a step-by-step guide to strategy, Journal of Business Strategy Vol. 26 No. 3 2005, pp, 12-19, « Emerald Group Publishing Limited, ISSN 0275-6668.
Scott, W. R., (1992), Organizations: Rational, Natural and Open Systems, Englewood Cliffs: Prentice Hall.

Sekaran, U., (2003), Research Methods for Business - A skill building approach, 4th edn, John Wiley & Sons, Brisbane.

Shenhar Aaron, (2005), Project Management Excellence Seminar, The Technological Leadership Institute.

Siciliano Julie, (2002), Governance and strategy implementation expanding the board's inVolvement, Business Horizons / November-December 2002.

Simkin Lyndon, (1996), People and Processes in Marketing Planning: The Benefits of Controlling Implementation, Journal of Marketing Management 12 - 375–390.

Simons, R., (1995), Control in an age of empowerment, Harvard Business Review.

Skivington, James E., and Daft, Richard L., (1991), A Study of Organisational “Framework” and “Process” Modalities for the Implementation of Business-Level Strategic Decisions, Journal of Management Studies 28 - 45–68.

Skyttner, Lars (2006), General Systems Theory: Problems, Perspective, Practice, World Scientific Publishing Company, ISBN 9-812-56467-5.

So¨derlund J., (2004), On the broadening scope of the research on projects: a review and a model for analysis, International Journal Project Management.

Somerville John, (1946), Soviet Philosophy: A Study of Theory and Practice, Contributors: - author, Publisher: Philosophical Library, Place of Publication: New York, Publication Year: 1946, Page Number: ix.

Sproull, Lee S., and Hofmeister, Kay Ramsay, (1986), Thinking about Implementation, Journal of Management 12 (1), - 43–60.

Srivannaboon Sabin, Milosevic Dragan, (2005), A two-way influence between business strategy and project management, International Journal of Project Management.

Srivannaboon, Sabin, (2006), Linking Project Management with Business Strategy, Journal of PMI, Vol. 37. No. 5. 88-96, ISSN 8756-9728/03.

Standish Group International, (1998), *Chaos a recipe for success,* Standish Group publications.

Standish Group, (1995), The THE STANDISH GROUP REPORT: Chaos, Standish Group, URL: http://www.standishgroup.com.

Standish Group, (2000), *Extreme Chaos*, Standish Group International Inc., URL: http://www.standishgroup.com.

Stock Gregory, Mc-Dermott Christopher, (2001), Organisational and strategic predictors of manufacturing technology implementation success an exploratory study, G.N, Stock, C.M, McDermott / Technovation 21 (2001), 625–636.

Strahle, William M., Spiro, Rosann L., Acito, Frank, (1996), Marketing and Sales: Strategic Alignment and Functional Implementation, Journal of Personal Selling & Sales Management 16 - 1–18.

Suprateek Sarker, (2000), Toward A Methodology For Managing Information Systems Implementation: A Social Constructivist Perspective, Volume 3 No 4, 2000, Informing Science, Washington State University.

Symons Craig, DeGennaro Tim, Visitacion Margo, (2009), The ROI Of Project Portfolio Management Tools - A Total Economic Impact™ (TEI), Analysis Uncovers Significant Benefits, Forrester.

T833, (1999), Implementation of New Technologies, Open University.

The Chaos Report, (1994), The Standish Group International, West Yarmouth, MA.

The World Bank, Operations Evaluation Department (OED), (1992), Evaluation Results, The World Bank: Washington, D.C.

Themistocleous G, Wearne SH, (2000), Project management topic coverage, in journals, International Journal Project Manage.

Thiry M., (2002), Combining value and project management into an effective programme management model, International Journal Project Management.

Thiry Michael, (2004), Value Management: A Group Decision-Making Process to achieve stakeholders needs and expectations in the most resources-effective ways, in: The Wiley Guide to Managing Projects, Morris, P.W.G, and Pinto, J. K., Wiley Inc: New York.

Thomas Janice, Delisle Connie, Jugdev Kam, Buckle Pamela, (2002), Selling Project Maneamgent to Senieor Executives, PMI Journal Vol 33, No 2.

Thomson A. Arthur Jr, Strickland III A. J., (1998), Crafting and Implementing strategy, Irwin/McGraw-Hill, ISBN: 0-256-24145-7.

Ticehurst, G. W. & Veal, A. J., (2000), Business Research Methods - A Managerial Approach, 2nd edn, Pearson Education.

Tikkanen Henrikki, Kujala Jaakko, Artto Karlos, (2007), The marketing strategy of a project-based firm: The Four Portfolios Framework, Industrial Marketing Management 36 (2007), 194–205

Tinnirello Paul, (2001), New Directions In Project Management - Auerbach, Auerbach Publications; ISBN: 084931190X; (September 26, 2001),

Tsoukas, H., (1989), “The validity of idiographic research explanations”, Academy of Management Review, 14, 4, 551- 561.

Twiss B., (1987), Managing technological innovation, third ed, London: Longman Publishing.
Urbach, Peter, (1987), Francis Bacon's Philosophy of Science, Open Court Publishing Co.

Vassilopoulos, A. George, (2003), MSc Thesis on Manufacturing: Management and Technology: Strategic model for the implementation of IT projects in a financial organisation, OU UK.

Vereecke A, Pandelaere E, Deschoolmeester D, Stevens M., (2003), A classification of development programmes and its consequences for programme development, International Journal Oper. Prod. Management.

Verzuh Eric, (2005), The Fast Forward MBA in Project Management, John Wiley & Sons, Inc.

Vitek William, (2008), Converging Theory and Practice: example selection in moral philosophy, Journal of Applied Philosophy, Volume 9 Issue 2, Pages 171 – 182, Published Online: 18 Feb 2008, 2009 Society for Applied Philosophy, Faculty of Liberal Studies, Clarkson University, Potsdam, NY 13699 USA.

Wainwright Charles, (1995), Design a missing link in manufacturing strategy, World Class Design to Manufacture Volume 2 · Number 3 · 1995 · pp. 25–32.

Waldersee, Robert, and Sheather, Simon, (1996), The Effects of Strategy Type on Strategy Implementation Actions, Human Relations 49 - 105–122.

Wallace W., (1971), The Logic of Science in Sociology Chicago: Aldine De Gruyter;

Ward J, et al (1996, 2002), Strategic Planning for Information Systems, Editions 2 & 3, Wiley.

Ward Jonathan, Karshen Michal, Eisenman Erik, (2009), The Point and Pitfalls in Portfolio Management, Article - www.projectsmart.co.uk.

Warnock Davies, (2000), Understanding strategy, Strategy & Leadership 2 8/5/ 2000, pp,25-30, M C B University Press, 1087 – 8572.

Weaver Patrick, (2007), The Origins of Modern Project Management, Fourth Annual PMI College of Scheduling Conference 15 - 18 April 2007 Marriott Pinnacle Downtown, Vancouver.

Weaver Patrick, (2008), Understanding Programs & Projects, PM Asia - Singapore conference in project management, Mosaicprojects.com.

Weber, R. P., (1990), Basic Content Analysis, 2nd ed. Newbury Park, CA.

Wernham, Roy, (1985), Obstacles to Strategy Implementation in a Nationalized Industry, Journal of Management Studies 22 - 632–648.

Whitney, J. C., and Smith, R. A., (1983), Effects of Group Cohesiveness on Attitude Polarization and the Acquisition of Knowledge in a Strategic Planning Context, Journal of Marketing Research 20 (May 1983): 167–176.

Whittington Richard, Molloy Eamonn, Mayer Michael, Smith Anne, (2006), Practices of Strategising Organising Broadening Strategy Work and Skills, Long Range Planning 39 (2006), pp. 615 - 629 http://www.lrpjournal.com.

Wideman Max R., (1992), Project and Program Risk Management -- A guide to Managing Project Risk and Opportunities, PMI, ISBN 1-880410-06-0

Wideman R. Max, (2005), Project Cost Control: The Way it Works, Max Wideman, AEW Services, Vancouver, BC.

Willis, P., & Trondman, M, (2000), Manifesto for ethnography, Ethnography.

Wilson Ian, (2003), The Subtle Art of Strategy: Organisational Planning in Uncertain Times, Greenwood Press, ISBN:156720435X.

Winget Megan, (2005), Qualitative Research: The "Ethnography of Annotation" Model, Article on qualitative research, The University of North Carolina.

Winter Mark, Smith Charles, (2006), Rethinking Project Management- Making Sense So Far: Emerging Directions and Future Research, Interim Report - May 2005, EPSRC Network 2004-2006.

Woolf, Murray B. (2007), Faster Construction Projects with CPM Scheduling,McGraw Hill ISBN 978-0071486606.

Yin, R. K., (2003), Case study research: Design and methods (3rd ed.), Thousand Oaks, CA: Sage.

Zikmund, W. G., (1997), *Exploring Marketing Research*, Dryden Press.

Zobel AM, Wearne SH., (2000), Project management topic coverage in recent conferences, Project Manage J.

Appendices

Appendix 1 Examples of projects' failures

The following are indicative examples of projects failures, revealed by various studies achieved by researchers and companies, since 1987. Most of the studies used large samples in their investigation, so this helps to the reliability of results.

Morris and Hough (1987) reviewed 3500 projects and concluded that overruns are the norm, being typically between 40% and 200%.

In 1988, Bull Corporation found that 75% of projects missed deadlines and, in the same year, Rand Corporation found that 88% of costs overran. Only one out of every three projects was profitable.

The World Bank (1992) found that among its recent projects, only 70% had been rated "satisfactory" with only one-third substantially achieving institutional development objectives. It was also found that delays in completion averaged 50% beyond that originally planned.

Roberts (1992) surveyed corporate R&D projects and concluded that less than half met their time-to-market and budget objectives.

Cooper's research, in (1993), found that commercial success was evident in only one out of every four projects.

Since the Standish Group (1994, 1995, 1998, 2000) began surveying companies for their project outcomes, the percentage of category "Failure" has been higher than the percentage of category "Success" which has been extremely low. Only 16.2% of the projects successfully delivered fully functional products on time and within budget. Of the remainder, two-thirds experienced schedule overruns of 50% or more and overruns for half of those projects were between 200 and 300% (The Chaos Report, 1994).

In (1996), Shenhar found that there was an overrun in 85% of projects (60% Business and 70% Technology projects).

From a sample of 10 projects, Reichert and Lyneis (1999) found that 55% of schedules overran and that cost overruns were as much as 86% (depending on assumptions).

Standish Group's research, in (2000), revealed that 28% of projects were successful. In 2003, IT projects wasted $82 billion of $382 billion.

The majority of all development projects fail to meet their time and cost targets, with the overrun typically between 40% and 200% (Lyneis 2003).

A recent Economic survey, by the Economist Intelligent Unit (EIU 2004), found that of 276 senior operations executives, from America and Canada, targeted eight key industries - life sciences, energy, manufacturing, chemicals, healthcare, retail, telecoms and consumer packaged goods. A discouraging 57% of organisations were unsuccessful at executing strategic initiatives over the past three years, according to their senior operating executives.
A research by McManus et al (2008) looked at 214 information systems (IS) projects. The period (1998-2005) of this analysis covered a number of information systems projects from across the European Union. According to the results, only one in eight information technology projects can be considered truly successful (failure being described as those projects that do not meet the original time, cost and quality requirements). Another example of the cost of project failure across the European Union was the expenditure of €142 billion in 2004. One of the major weaknesses uncovered during the analysis was the total reliance placed on project and development methodologies. One explanation for the reliance on methodology is the absence of leadership within the delivery process. Processes alone are far from enough to cover the complexity and human aspects of many large projects that are subject to multiple stakeholders as well as resource and ethical constraints. McManus et al (2008) suggests the development of an alternative methodology for project management based on a leadership as well as stakeholder and risk management. This will lead to a better understanding of the management issues that may contribute to the successful delivery of projects. Another example is the Center for Business Practices (CBP 2008) who surveyed senior practitioners regarding knowledge of their organisations' management practices and business results. The survey asked the respondents to assess their organisation's portfolio of projects that were closed over the past 12 months. This was done in order to determine whether the projects were successful, troubled then recovered, remained troubled, troubled then failed or terminated for good business reasons. The results were that, in a year, organisations that had an average closing of $65 million worth of projects saw $30 million of those projects at risk of failing. Of the organisations surveyed, 47% of their projects were troubled, troubled and recovered, or troubled and failed. Over a 12 month period, 1,830 out of 3,874 projects (that closed) were troubled.

Appendix 2 Influence factors per implementation path

Total average percentage scores per implementation path					
Factors	**S1. Portfolio to program and project management route**	**S2. Program and project management route**	**S3.Through Portfolio and project management**	**S4.Direct to Project Management**	**S5.By using other mechanisms and practices**
F1	56,92%	52,63%	70,86%	61,33%	47,50%
F2	76,92%	68,42%	83,43%	66,67%	52,50%
F3	78,46%	62,11%	87,43%	59,33%	55,00%
F4	29,23%	45,26%	64,57%	18,67%	35,00%
F5	23,08%	33,68%	52,00%	19,33%	20,00%
F6	43,08%	58,95%	58,86%	66,00%	30,00%
F7	13,85%	36,84%	36,00%	30,00%	15,00%
F8	38,46%	45,26%	42,29%	34,00%	30,00%
F9	32,31%	36,84%	49,14%	26,67%	40,00%
F10	26,15%	25,26%	29,71%	27,33%	37,50%
F11	16,92%	31,58%	34,86%	22,67%	20,00%
F12	0,00%	15,79%	5,71%	14,67%	0,00%
F13	3,08%	11,58%	9,14%	9,33%	5,00%
F14	53,85%	33,68%	42,86%	45,33%	27,50%
F15	32,31%	18,95%	30,29%	32,67%	15,00%
F16	27,69%	15,79%	30,29%	20,00%	12,50%
F17	24,62%	24,21%	28,00%	32,67%	25,00%
F18	4,62%	20,00%	11,43%	10,67%	7,50%
F19	50,77%	37,89%	47,43%	49,33%	25,00%
F20	6,15%	37,89%	13,71%	38,00%	10,00%
F21	6,15%	37,89%	14,29%	42,00%	10,00%
F22	13,85%	15,79%	26,29%	23,33%	5,00%
F23	21,54%	24,21%	37,71%	20,00%	17,50%
F24	6,15%	17,89%	10,29%	28,00%	2,50%
F25	40,00%	23,16%	37,14%	18,00%	10,00%
F26	43,08%	37,89%	25,71%	48,67%	17,50%
F27	32,31%	32,63%	10,86%	41,33%	15,00%
F28	44,62%	40,00%	24,57%	38,00%	37,50%

F29	27,69%	42,11%	18,29%	48,00%	32,50%

Table A2.1. Analysis of total average percentage proportions of influence factors (F1- F29) assessment per implementation path used (S1- S5), (Document 4)

Factors	**S1**	**Factors**	**S2**	**Factors**	**S3**	**Factors**	**S4**	**Factors**	**S5**
F3	78,46%	**F2**	68,42%	**F3**	87,43%	**F2**	66,67%	**F3**	55,00%
F2	76,92%	**F3**	62,11%	**F2**	83,43%	**F6**	66,00%	**F2**	52,50%
F1	56,92%	**F6**	58,95%	**F1**	70,86%	**F1**	61,33%	**F1**	47,50%
F14	53,85%	**F1**	52,63%	**F4**	64,57%	**F3**	59,33%	**F9**	40,00%
F19	50,77%	**F4**	45,26%	**F6**	58,86%	**F19**	49,33%	**F10**	37,50%
F28	44,62%	**F8**	45,26%	**F5**	52,00%	**F26**	48,67%	**F28**	37,50%
F6	43,08%	**F29**	42,11%	**F9**	49,14%	**F29**	48,00%	**F4**	35,00%
F26	43,08%	**F28**	40,00%	**F19**	47,43%	**F14**	45,33%	**F29**	32,50%
F25	40,00%	**F19**	37,89%	**F14**	42,86%	**F21**	42,00%	**F6**	30,00%
F8	38,46%	**F20**	37,89%	**F8**	42,29%	**F27**	41,33%	**F8**	30,00%
F9	32,31%	**F21**	37,89%	**F23**	37,71%	**F20**	38,00%	**F14**	27,50%
F15	32,31%	**F26**	37,89%	**F25**	37,14%	**F28**	38,00%	**F17**	25,00%
F27	32,31%	**F7**	36,84%	**F7**	36,00%	**F8**	34,00%	**F19**	25,00%
F4	29,23%	**F9**	36,84%	**F11**	34,86%	**F15**	32,67%	**F5**	20,00%
F16	27,69%	**F5**	33,68%	**F15**	30,29%	**F17**	32,67%	**F11**	20,00%
F29	27,69%	**F14**	33,68%	**F16**	30,29%	**F7**	30,00%	**F23**	17,50%
F10	26,15%	**F27**	32,63%	**F10**	29,71%	**F24**	28,00%	**F26**	17,50%
F17	24,62%	**F11**	31,58%	**F17**	28,00%	**F10**	27,33%	**F7**	15,00%
F5	23,08%	**F10**	25,26%	**F22**	26,29%	**F9**	26,67%	**F15**	15,00%
F23	21,54%	**F17**	24,21%	**F26**	25,71%	**F22**	23,33%	**F27**	15,00%
F11	16,92%	**F23**	24,21%	**F28**	24,57%	**F11**	22,67%	**F16**	12,50%
F7	13,85%	**F25**	23,16%	**F29**	18,29%	**F16**	20,00%	**F20**	10,00%
F22	13,85%	**F18**	20,00%	**F21**	14,29%	**F23**	20,00%	**F21**	10,00%
F20	6,15%	**F15**	18,95%	**F20**	13,71%	**F5**	19,33%	**F25**	10,00%
F21	6,15%	**F24**	17,89%	**F18**	11,43%	**F4**	18,67%	**F18**	7,50%
F24	6,15%	**F12**	15,79%	**F27**	10,86%	**F25**	18,00%	**F13**	5,00%
F18	4,62%	**F16**	15,79%	**F24**	10,29%	**F12**	14,67%	**F22**	5,00%
F13	3,08%	**F22**	15,79%	**F13**	9,14%	**F18**	10,67%	**F24**	2,50%
F12	0,00%	**F13**	11,58%	**F12**	5,71%	**F13**	9,33%	**F12**	0,00%

Table A2.2. Sorting of influence factors according to the most higher percentage proportion score per implementation path (S1-S5), (Document 4)

#	Influencing factors
F1	Projects Prioritisation (by Portfolio Management)
F2	Upper management consensus and commitment
F3	Organisational culture
F4	Organisational politics
F5	Organisational knowledge management
F6	Human Factor
F7	Organisational quality
F8	Organisational bureaucracy
F9	Organisational complexity
F10	Operational processes support
F11	External environment
F12	Ethical factors
F13	Organisational Training
F14	Organisational communication
F15	Project team members work load
F16	Dependences between strategic or other projects
F17	Project management process
F18	Support from Information Technology (IT)
F19	Stakeholders
F20	Project time
F21	Project cost
F22	Project's delivered product quality
F23	Project complexity
F24	Project Earned Value management
F25	Project management flexibility
F26	Risk management
F27	Project Management Office (PMO)
F28	Project management strategy
F29	Organisational maturity on project management

Table A2.3 Grouped and coded influencing factors

Appendix 3 Influencing Factors of document 3

Factors	Codes
Organisational strategy and operating plans	OS & OP
Portfolio, Program Management and Projects Prioritisation	PP&PP
Upper management consensus and influences	UMC&I
Organisational culture	OC
Organisational Politics	OP
Organisational knowledge management	OKM
Human Factor	HF
Organisational Quality	OQ
Organisational bureaucracy	OB
Operational processes support	OPS
External environment influences	EEI
Ethical factors	EF
Organisational complexity	OCx
Organisational communication	OCom
Project management process	PMP
Information Technology	IT
Stakeholders	S
Project Earned Value management	PEVM
Project Management Flexibility	PMF
Project time and cost control	PT&CC
Risk management	RM
Project Management Office (PMO)	PMO
Project management strategy	PMS
Organisational maturity on project management	OMPM

Table A3.1 Influencing factors codes

1	Human factor
2	Organisational quality
3	Information technology support
4	Organisational communication
5	Project management strategy
6	Organisational project management maturity

Table A3.2. The most important factors found by qualitative research

Appendix 4 Interview letter

THE NOTTINGHAM TRENT UNIVERSITY

NOTTINGHAM BUSINESS SCHOOL

Research coordinators:

Dr. Diane White / Nottingham Trent University

Professor Colin Fisher/ Nottingham Trent University

Professor Dimitrios Tseles / Dean of Technology Engineering Institute of Piraeus

Researcher[3]: George A. Vassilopoulos

Questionnaire topic: "The process and the Key Decision Factors (KDF) of strategic projects implementation route selection"

Mr/ Mrs,

My name is George Vassilopoulos and I work as Senior Project Manager in INTERAMERICAN, in the Division of Information Technology - Project Office. At the same time I'm a DBA candidate at Nottingham Trent University. My professional and academicals interests are focused on the above mentioned topic, because I believe that the successful implementation of Business Strategy is a crucial factor for any organisation. Today, Project Management Context is perceived as an important vehicle and tool of modern strategies implementation. Therefore, I appreciate your involvement to the investigation of this research topic and I would like to ask you to arrange a meeting with me, whenever it is convenient for you, in order to discuss relevant issues. I will thus have the opportunity to explain in detail the research project and ask for your co-operation and confirmation by consent form. Your experience and views will be very valuable for the progress of this research. The answers of the interview will be treated with confidentiality and used for academic purposes only. The results of the study will be communicated back to you at the end of this research project, accordingly.

Thank you in advance for your co-operation.

George A. Vassilopoulos

DBA Candidate

[3] "This research is performed in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

THE NOTTINGHAM TRENT UNIVERSITY
NOTTINGHAM BUSINESS SCHOOL

DOCTOR OF BUSINESS ADMINISTRATION

The process and the Key Decision Factors (KDF) of strategic projects implementation route selection

Participant information sheet and consent form

George A. Vassilopoulos

June 2009

Research objectives

The primary objective of this study is to identify the key decision factors and reveal the process used for the implementation of strategic projects through project management context. There is also the intension for the amendment of a “Strategic Link Model” which will participate in the active role of the translator between the organisation strategy and project management contexts, such as portfolio, programme & project processes.

Research ethical issues

The current research from an ethical standpoint will be conducted in accordance with fundamental and widely accepted principles, such as:

- Beneficence - 'do a positive good'
- Organisations and Participants Non-Malfeasance - 'do no harm'
- Informed Consent
- Confidentiality, anonymity and data privacy

Research procedures

- Negotiating access is requested from organisations through personal or via e-mail communication. Participants will be informed in order to understand the processes that will be engaged according to the scope of this research.

- Voluntary participation is requested from the organisations and participants and they will not be coerced to re-engage if they decide to withdraw. The participants will be given the opportunity to express any issues of concern pertaining to the research documentation given to them.

- Some of the interviews will be audio-taped in order to facilitate the compilation of data.

- The process, in which focus groups/interviews will be taped, will be highlighted at the outset of every interview and participants will be given the choice to decline.

- The confidentiality and anonymity of participants’ data will be assured as the norm for the ethical conduct of the research.

- The gathering of this research data will be done using quantitative methodology, while the disclosure of names, addresses, occupational and location details will be avoided.

- Anonymity will be assured by removing any such sensitive information from the study presentation. Issues from this research which may include sensitive or confidential information, will be dealt with by gaining consent from the participated organisations.

- All material gathered during this research will be treated as confidential and will be stored by a secure method. It will be made clear to participants that first, information will be shared with other academic researchers under strict terms and conditions, and secondly, that anonymity will be exercised.

It is important to demonstrate this confidentiality agreement by obtaining written consent from all participants in order to use the information for the present research, so it is required to fill-up the following form and return it to the researcher for keeping it as evidence in ethical approval process of NTU.

CONSENT FORM FOR THE DBA RESEARCH STUDY

Title of Project: The Links between Organisational Strategy and Project Management

Name of Researcher: George A. Vassilopoulos

	Please tick to confirm
• I confirm that I have read and understand the information sheet dated ..... (Version .....) for the above study.	☐
• I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
• I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without any of my legal rights being affected.	☐
• I understand that relevant sections of any of research project's notes and data collected during the study may be looked at by responsible individuals from NTU, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
• I agree to my company being informed of my participation in the study.	☐
• I agree to take part in the above research study.	☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

When complete, 1 copy for participant: 1 copy for researcher site file: 1 (original) to be kept in research project notes.

Appendix 6 Interview questions

Semi-structured interview questions

Participants were asked to narrate a story about their experience regarding the PMC processes and the path selection process. The semi-structured questions asked during interviews are given below. Some additional questions were also asked during the interviews to gain further information.

Strategic projects

- How are the strategic projects of your organisation initiated?
- Who is involved in this process?
- What issues or obstacles did you face during this process?

Implementation

- Please describe the process that your organisation is planning the implementation of strategic projects.
- What is the frequency of this strategic planning?
- Who is involved?
- Why are you following such strategic planning? For what reasons?
- What factors, according to your opinion affects this process?
- Describe the process you are using in your organisation for the implementation of strategic projects.
- What were the criteria during implementation paths selection? (when choosing portfolio of program or project management paths)
- Who is involved and how?
- In your opinion, what factors affects this process?
- Can you describe a case of a strategic project successful implementation?
- In your opinion what reasons (factors) affect project success?
- Can you describe a case of a complex strategic project implementation?
- In your opinion, what were the relevant factors?
- Can you describe a case of an implementation failure?

In your opinion, what reasons (factors) caused such failure? (Participants were asked to narrate a story about their experience of a project failure).

- Why did your organisation use or not use the portfolio management process?
- Why did your organisation use or not use the program management process?
- Why did your organisation use or not use project management process?

- What alternative method are you using for the implementation of strategic projects (if not using the previous processes)? For what reasons?
- For what reasons (factors) did you select a different path each time (if such a hybrid approach was mentioned)?
- What is the level of project management maturity of your organisation?
- Are there any additional comments regarding strategic projects and implementation processes adopted?

The questions asked of participants from service sector organizations were the following:

Strategic projects

- According to your experience, how are strategic projects in financial organisations initiated?
- Who is involved in this process and how?
- In your opinion, what factors affected this process?

Implementation

- Describe the process that according to your experience, the financial organisations you know are planning the implementation of strategic projects.
- What is the frequency of this strategic organisation planning?
- Who is involved and how?
- Why they are following this direction of planning?
- In your opinion, what factors are affecting this process?
- Describe the process you think that those financial organisations are using for the implementation of strategic projects.
- What were the criteria during implementation paths selection? (when choosing portfolio of program or project management paths)
- Who is involved in this selection and how?
- In your opinion, what factors affect this process?
- Can you describe a case of strategic project successful implementation?
- In your opinion, what reasons (factors) affect project success?
- Can you describe a case of complex strategic project implementation?
- In your opinion, what factors affected this implementation?
- Can you describe a case of strategic project implementation failure?
- In your opinion, what reasons (factors) caused such failure?
- Why did they use or not use the portfolio management process?

- Why did they use or not use the program management process?
- Why did they use or not use project management process?
- What was the alternative method you think they used for the implementation of strategic projects (if not using the previous processes)? Why?
- For what reasons (factors) were different paths selected each time (if participants mentioned such a hybrid approach)?
- What is the level of project management maturity of the financial organisations you know?
- Are there any additional comments regarding strategic projects and implementation processes?

Appendix 7 The Strategy Implementation Model (SIM)

The connection begins with Business Strategy (BS) processes and proceeds on to PMC which is the final element of the model. In addition, there are a range of influencing factors affecting those elements as well as their links. In other words, they affect the incorporation and collaboration of business strategy and project management producing fragmentation and/or disconnection issues that require proactive anticipation and control. The first edition of a Strategy Implementation Model is taken from the conceptual framework of the literature review in document two. The next version is updated by qualitative research findings and presented in document three. The last edition comes from the quantitative research results.

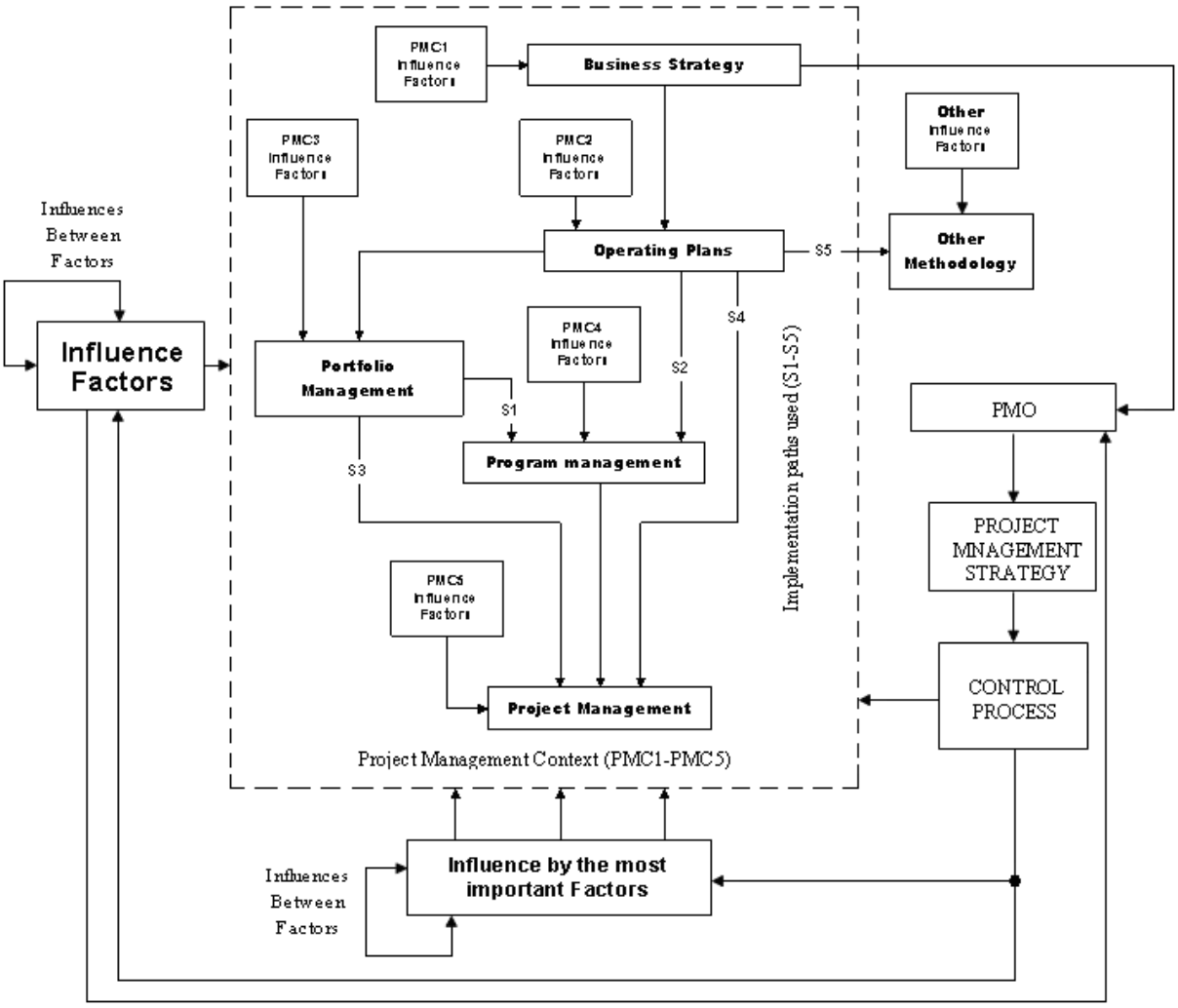

Figure 7.1 The Strategy Implementation Model (SIM). (Source: Document four)

Appendix 8 Quasi Statistics Analysis

Quasi-statistics analysis

.

#	Group1: The Key Decision Criteria (KDC)	Quasi Statistics Codes	Total scores
1	Utilization of appropriate methods models and tools at project and multi-project levels	**tools**	**43**
2	Minimize uncertainty of projects implementation	**Uncertainty**	**34**
3	Effective resources utilisation and capacity planning	**Resources**	**33**
4	Assist to the speed of strategic projects implementation.	**Implementation speed**	**32**
5	Effective organisational communication in relation with strategic projects implementation	**Communication**	**31**
6	Minimize the risk and avoidance of project failure	**Risk**	**31**
7	Have an effective budget utilization	**Budget**	**30**
8	Efficiency, simplicity, flexibility and scalability in implementation	**Flexibility**	**30**
9	Effective links between processes	**Linked processes**	**28**
10	Effective forecasting of capacity and budgets	**Forecasting**	**28**
11	Effective link projects with interdependences	**Projects Interdependences**	**28**
12	Establishment of a link with other areas and processes	**Links between processes**	**28**
13	Effective centralized management - focuses on the big picture	**Central management**	**27**
14	Manages a series of related projects designed to accomplish broad goals	**Related projects**	**27**
15	Efficiency and effectiveness of implementation – integration of schedules	**Effectiveness**	**27**
16	Alignment with organisational strategy	**Strategy**	**26**
17	Evaluation, categorization and prioritization of strategic projects	**Evaluation**	**26**
18	Maximization of value of investments	**Get value**	**26**

19	Have coherent communication between projects	**Projects links**	**25**
20	Avoidance of project time overruns	**Time issues**	**24**
21	Avoidance of project quality failures	**Quality issues**	**24**
22	Avoidance of low-value projects	**Low-value projects**	**24**
23	Enable senior management to direct and control the implementation process.	**Senior Management**	**24**
24	Reflection and representation of investments	**Investments**	**23**
25	Avoidance of project cost overruns	**Cost**	**23**
26	Reduction in administrative time (status reporting and facilitation)	**Administration**	**23**
27	Enable monitor the implementation process by senior management.	**Monitor progress**	**21**
28	Resolve inconsistencies and disconnects across projects	**Project issues**	**21**
29	Achieve customers' satisfaction	**Customers**	**21**
30	Effective knowledge transfer	**Knowledge**	**20**
31	Continuous evaluation of projects, acceleration of projects, revises, kill or de-prioritize	**Projects re-evaluation**	**20**
32	Effective management of multiple stakeholders	**Stakeholders**	**20**
33	Avoidance of implementation paths issues and problems	**Various issues**	**14**
34	Identification of cost and benefits	**Benefits**	**12**

Table A8.1. The (KDC) total scores

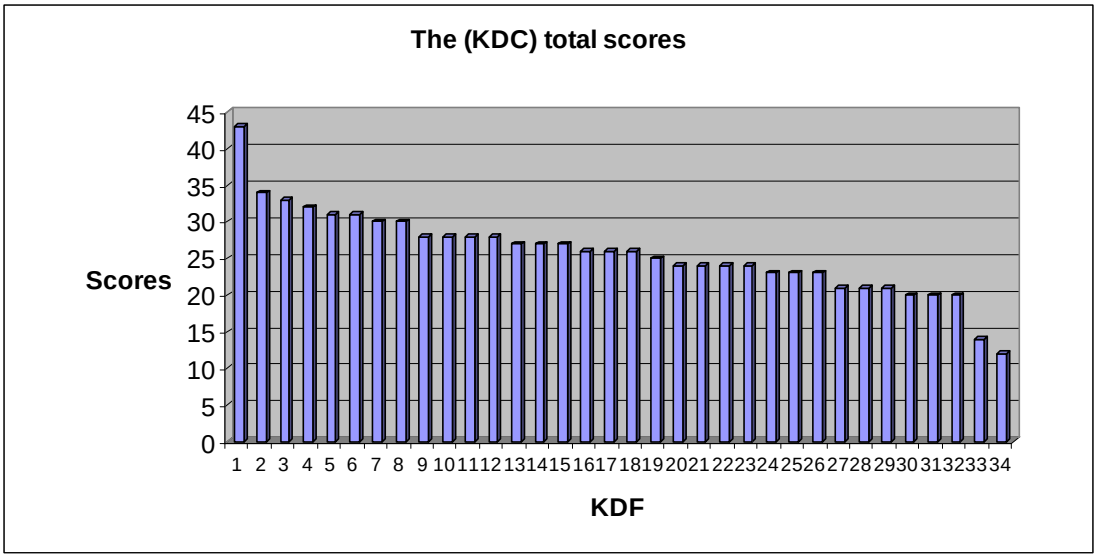

Figure A8.1. Total KDC scores

#	Group2: The organisational influence factors (OIF)	Quasi Statistics Codes	Total scores
1	Organisational strategy as the driver	Strategy	48
2	The use of appropriate mix of tools, techniques and models of implementation direction.	Tools	47
3	Organisational maturity in project management	Maturity	46
4	Systems functional support	Support	43
5	Organisational culture	Culture	42
6	Human factor	Human	40
7	The project management knowledge	Knowledge	38
8	Urgent strategic projects	Urgency	33
9	Organisational complexity and bureaucracy	Complexity - Bureaucracy	33
10	Emergent strategy	Emergency	32
11	The role of direct and indirect strategic projects	Types of projects	32
12	The upper management	Upper management	31
13	The external and internal influence factors	External and internal Factors	28
14	The type of organisation	Organisation	25
15	Operating planning	Planning	24
16	Political factors	Politics	21
17	The confusion between (PMC) framework processes	Confusion	21
18	Project cost	Cost	20
19	Uncertainty - urgency and unexpectedness as factors	Unexpected projects	19
20	The organisational competitive advantage	Competition	18

Table A8.2. The (OIF) total scores

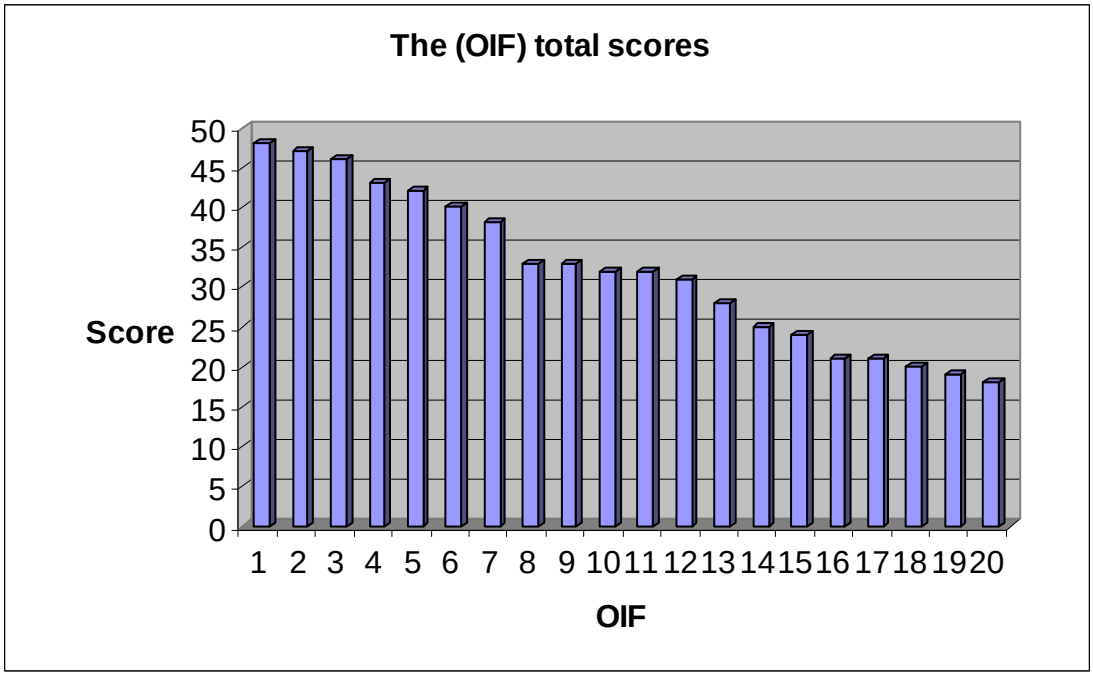

Figure A8.2. Total descending OIF scores

The difference between interview and observation data

The next step of the analysis addressed the extent to which the KDC and OIF variables are aligned. Two sets of qualitative data, using quasi-statistics, were created to rate the importance of findings. The Euclidean distance method adapted to translate the observation (set-1, Xo) and interview (set-2, Xi) data agreement or disagreement. Each set of data was analysed through matched pairs of interviews and observations of KDC and OIF, respectively. To identify the disagreement between interviews and observational data, it is assumed that it is related to the difference between two elements. As a result, the first step was to calculate the disagreement score based on the Euclidean distance using a square root of the sum of squared differences between them. The following mathematical formula represents the analysis performed.

$$\text{Disagreement} = \sqrt{\sum_{i=1}^{n} \left(\overline{X_i} - \overline{X_o} \right)^2}$$

where $\overline{X_i}$ = The value of interviews scores

$\overline{X_o}$ = The average value of observations scores

For n=8 for the interviews and o= the average score of the 3 observations.
The calculation is performed for each of the KDF and OIF.

The final disagreement is calculated by the average of KDC and OIF disagreements

The percentage of % indicates difference between the scores. The percentage of 100% means that there is a total disagreement between the scores. The following table A8.3 shows the total percentages of difference between observation and interview data. This percentage of difference shows a small and acceptable level.

	The Key Decision Criteria (KDC)	**The Organisational Influence Factors (OIF)**
Disagreement of metrics between interviews and observations=	**8%**	**7%**

Table A8.3. The average percentage difference of interview and observation of total KDC and OIF scores.

Note: (The calculation is performed by using Excel 2003).

Appendix 9. Example of transcript and notes taken during the interview with a participant from Insurance sector

The following interview was conducted with Mr. G. K., an IT head and project manager in a large Greek insurance company. He had 26 years experience on implementation of strategic business and IT related projects. The interview is based on semi-structured questions while the researcher asked some additional questions during the conversation and took some supplementary notes.

Translation to English of the Greek interview transcript

Ερωτήσεις και απαντήσεις σχετικά με τα σχέδια στρατηγικής

Questions and answers regarding strategic projects

INTERVIEWER: Πώς τα στρατηγικά σχέδια ξεκινούν στον οργανισμό σας;

INTERVIEWEE: Τα στρατηγικά έργα μας είναι κυρίως τα επείγοντα νέα προϊόντα. Αυτό συμβαίνει επειδή έτσι διατηρείται το ανταγωνιστικό μας πλεονέκτημα στην αγορά. Όταν το τμήμα πωλήσεων ξεκινά την απαίτηση ενός νέου ανοίγματος στην αγορά, υποθέτουμε ότι θα πρέπει να ήμαστε σε εγρήγορση και να δράσουμε άμεσα.

INTERVIEWER: How are strategic projects initiated in your organisation?

INTERVIEWEE: Strategic projects are related with urgent new products. This is because they increase our competitive advantage in the marketplace. When the sales department initiates a new product for a new market opening, the assumption (a hypothesis) is that we must be ready and be alerted in order to act immediately.

INTERVIEWER: Υπάρχει άλλο είδος επειγόντων έργων;

INTERVIEWEE: Ναι, υπάρχουν αλλά εσωτερικά έργα αλλά δεν είναι τόσο συχνά όσο τα προϊόντα. Γενικά όμως, πρόκειται για επενδυτικά προϊόντα, την υγειονομική περίθαλψη, τα προϊόντα ασφάλισης περιουσίας και πολλά άλλα.

Σημειώσεις: Ο συμμετέχων έδωσε μερικά ακόμη παραδείγματα των νέων προϊόντων.

INTERVIEWER: Are there any other types of urgent projects?

INTERVIEWEE: Yes, there are some other internal projects, but they are not so frequently as the new products. Generally, such projects are investment products, health care, property insurance products and many others.

Notes: The participant gave some more examples of new products.

INTERVIEWER: Ποιοι είναι αυτοί που συμμετέχουν στη διαδικασία στρατηγικού σχεδιασμού;

INTERVIEWEE: Συμμετέχουν τα ανώτερα στελέχη, και πολλά άλλα τμήματα, το μάρκετινγκ, νομικό τμήμα, πληροφορικής, των πωλήσεων, αναλογιστικών μελετών.

INTERVIEWER: Αυτό σημαίνει ότι πρέπει να συνεργαστούν και να βοηθήσουν στην υλοποίηση των έργων;

INTERVIEWEE: Οπωσδήποτε, η συμμετοχή τους στα στρατηγικά σχέδια είναι απαραίτητη.

INTERVIEWER: Who is involved in strategic planning process?

INTERVIEWEE: Mostly, the upper management, and many other like marketing, legal, IT, sales and actuarial departments.

INTERVIEWER: That means they must also cooperate and help to the implementation of the projects?

INTERVIEWEE: Definitely yes, their participation in strategic projects is a must.

INTERVIEWER: Ποια θέματα ή εμπόδια που σας αντιμετωπίζουν κατά τη διαδικασία σχεδιασμού;

INTERVIEWEE: Θυμάμαι όταν είχαμε σε εξέλιξη κάποια άλλα σημαντικά έργα, όταν αντιμετωπίσαμε προβλήματα. Είχαμε καθυστερήσεις προγραμματισμένων παραδοτέων από τα τμήματα που συμμετείχαν στα έργα. Αυτό οφείλεται στην έναρξη ενός νέου στρατηγικού προϊόντος. Αντιμετωπίσαμε επίσης προβλήματα με τη νομοθεσία σχετικά με ορισμένα στοιχεία της ασφαλιστικών καλύψεων. Από την άλλη πλευρά, η διοίκηση **νοητά** δεν μπορούσε να καταλάβει την κατάσταση όλων εκείνων των άλλων έργων ρωτούσε για το τι συνέβη, τους λόγους που είχαμε αυτές τις καθυστερήσεις μιας και δεν υπήρξε ενημέρωση από κάποιο report. Μερικές φορές η διοίκηση θέλησε να δώσει προτεραιότητες σε άλλα από τα έργα, αλλά επειδή δεν ήξερε τι συνέβη, δεν μπορούσε να τα αξιολογήσει.

INTERVIEWER: What issues or obstacles do you face in the organisational planning process?

INTERVIEWEE: I remember when we had some other important projects in progress, when such problems raised. We faced delays of project-tasks, for the planned deliverables, with

some departments participated to that projects. This is happened because of the initiation of a new strategic (product) project. We also faced some insurance legislation issues. On the other hand, the upper management could not understand or even had the feeling for the truth about what is happened, so, that caused the delay of the deliverables, because there was no reliable report for the actual status of the projects. Some times the upper management wanted to give priorities on different projects, but as they did not know what happened in reality, they could not assess them rationally.

INTERVIEWER: Λοιπόν, τι συνέβη σε αυτήν την περίπτωση;
INTERVIEWEE: Δεν ήταν τόσο απλό, αλλά εν ολίγης, οργανώθηκε συνάντηση και εξηγήσαμε εκεί τα θέματα και τα προβλήματα που αντιμετωπίσαμε έτσι ώστε να μπορέσουν να παρθούν αποφάσεις. Τέλος, συμφώνησαν σχετικά με τις προτεραιότητες σε ορισμένα από τα έργα σε εξέλιξη και έτσι, προχωρήσαμε ανάλογα.

INTERVIEWER: So, what happened in this case?
INTERVIEWEE: It was not so simple, but, we arranged a meeting for this reason in order to discuss the issues and problems, and decide what to do. Finally, we agreed for the priorities, in some of the projects that were already under development.

Ερωτήσεις και απαντήσεις όσον αφορά την υλοποίηση των στρατηγικών σχεδίων

Questions and answers regarding Implementation of strategic projects

INTERVIEWER: Παρακαλώ μπορείτε να περιγράψτε τη διαδικασία που η εταιρεία σας σχεδιάζει την υλοποίηση αυτών των επειγόντων στρατηγικών έργων.

INTERVIEWEE: Για τα επείγοντα στρατηγικά έργα, όταν αυτά προκύπτουν, βεβαίως χρησιμοποιούμε τις θεμελιώδεις αρχές της διαχείρισης έργων, αλλά προσαρμοσμένη στις ανάγκες μας. Πρώτα από όλα, έχουμε την έγκριση σχεδίου, και τη συμμετοχή όλων των οργανωτικών τμημάτων. Από την άλλη πλευρά, πρέπει να γνωρίζουμε ποια έργα βρίσκονται στο σχέδιο και βρίσκονται σε εξέλιξη και ποια από αυτά είναι για το ίδιο πεδίο εφαρμογής και την υποστήριξη των γενικών στόχων της εταιρείας, όπως το πρόγραμμα της αποδοτικότητας, μείωση κόστους και άλλα. Φυσικά, όταν ένα νέο στρατηγικό σχέδιο είναι σε εξέλιξη ψάχνουμε πώς να το προγραμματίσουμε στηριζόμενοι στη προτεραιότητα του αλλά και σε σχέση με άλλα έργα που βρίσκονται ήδη σε εξέλιξη. Στη συνέχεια, έχουμε την κατάταξη τους στο χαρτοφυλάκιό των έργων μας και σε ένα από τα προγράμματά μας. Η

χρήση του MS project server λογισμικού είναι κατάλληλη για αυτή τη δουλειά δεδομένου ότι είναι ευέλικτη και αρκετά χρήσιμη. Τώρα, μερικές φορές υπήρχε η ανάγκη να προχωρήσουμε γρηγορότερα σε ένα νέο στρατηγικό σχέδιο, προκειμένου να καλύψουμε τις ημερομηνίες και την ανάγκη να βγούμε στην αγορά άμεσα. Έτσι, στη συγκεκριμένη περίπτωση το έργο εξαιρείτο αυτής της διαδικασίας.

INTERVIEWER: Please can you describe the process your organisation is using for planning the implementation of urgent strategic projects?

INTERVIEWEE: For an urgent strategic project, of course, we are using the basics of project management process, but it should be totally adapted to our needs. First of all, we are adopting a plan, involving all organisational departments. On the other hand, we need to know what projects are currently active (planned) and which of them are for the same organisational scope of the broad company goals, such as profitability program, costs reduction and others. Of course, when a new strategic project is initiated by the upper management, we are looking how to plan it, based on the priority and in relation to other projects that are already under development. Then, we classify it in our portfolio and put it in one of our programs. For this reason, we are using MS project server software, as it is seems suitable for us, because it seems more flexible that other software. Now, sometimes there was a need to proceed immediately, with a new strategic project, in order to catch the planned dates of product promotion to the marketplace. Thus, in this case such a project was excluded from that standard project management process.

INTERVIEWER: Σε τι συχνότητα γίνετε ο στρατηγικός σχεδιασμός στην εταιρεία σας;
INTERVIEWEE: Κάθε 3 χρόνια, το management team σχεδιάζει τους στόχους της επιχείρησης. Αλλά και αυτό συμβαίνει επίσης και ετησίως. Κάνουμε εκ νέου προγραμματισμό των ετήσιων έργων με μεγαλύτερη λεπτομέρεια του πλάνου. Ασφαλώς και υπάρχουν, όπως προαναφέρθηκε, απρόσμενα νέα έργα που χρειάζονται ειδική προσοχή και μεταχείριση.

INTERVIEWER: What is the frequency of strategic planning in your company?
INTERVIEWEE: Every three years, the senior management is planning the business goals. However, this is also performed yearly. We are re-programming the annual targets and plans with more details. Certainly, as noted before, there are some unexpected new strategic projects that require special attention and handling.

INTERVIEWER: Ποιος εμπλέκεται σε αυτή τη διαδικασία;

INTERVIEWEE: Στην περίπτωση αυτή, τα ανώτατα και ανώτερα στελέχη όλων των γενικών διευθύνσεων όλων των υπηρεσιών. Η συνάντηση αυτή γίνετε έξω από τις άλλες δραστηριότητες, σε ένα Σαββατοκύριακο. Αλλά και αυτή είναι η πρώτη από πολλές άλλες συναντήσεις που ακολουθούν με καθένα από τους υπευθύνους του κάθε τμήματος ξεχωριστά.

INTERVIEWER: Who is involved in this process?
INTERVIEWEE: In this case the upper management and all general managers from the related organisational departments. This meeting is performed beyond other activities, and on a weekend basis. But also this is the first of many other meetings followed involving all individual departmental managers.

INTERVIEWER: Ποιοι είναι οι λόγοι που ακολουθείτε αυτή τη συγκεκριμένη διαδικασία στρατηγικού σχεδιασμού
INTERVIEWEE: Αυτή είναι η συμφωνία μεταξύ όλων των υπευθύνων από τα τμήματα του οφέλους ενός νέου στρατηγικού έργου. Μερικές φορές, υπάρχει μια αμφιβολία σχετικά με τα έργα που είναι τα πιο σημαντικά. Υπάρχουν επίσης κάποια πολιτικά παιχνίδια που παίζουν ρόλο. Από την άλλη πλευρά, επείγοντα στρατηγικά έργα απαιτούν άμεση ανταπόκριση και δράση. Μερικά από τα έργα επιλέγονται για να καλύψουν γενικές επιχειρησιακές ανάγκες και είναι μέρος εργασιών σε άλλα μεμονωμένα έργα. Το πρόβλημα είναι να συμφωνηθεί και να υπάρξουν τα έργα που θα υλοποιηθούν με επιτυχία χωρίς ελλιπείς ή παρεξηγημένες προδιαγραφές. Προσπαθούμε να δώσουμε προτεραιότητα και να δημιουργήσουμε μια ομάδα έργων ανά στρατηγικό στόχο. Στη συνέχεια να γίνει εκτίμηση των απαιτούμενου κόστους και γενικά μια πρόγνωση για το μέλλον του έργου. Στο τέλος, κάθε σχέδιο θα πρέπει να αποδίδει την απαιτούμενη αξία στην στρατηγική της εταιρείας. Όλα τα άλλα έργα μπορούν να περιμένουν.

INTERVIEWER: What are the reasons that follow such a strategic planning process?
INTERVIEWEE: This is to agree with all departmental managers the value of a new strategic project. Sometimes, there is a doubt on which projects are the most important. There are also some politics that play a critical role. On the other hand, urgent strategic projects require immediate response and taking action. Some of the projects decided to meet general business needs and are part of work on other individual targets. The problem is to agree and there are projects that must be implemented successfully without any incomplete or misunderstood requirements. We are trying to give prioritisation and group the projects per strategic target. Then we must estimate the required budgets and in general, to forecast the future of the

project. Finally, each project should give value to the company's strategy. All other projects can wait.

INTERVIEWER: Ποιοι παράγοντες, σύμφωνα με τη γνώμη σας επηρεάζουν την προηγούμενη διαδικασία;

INTERVIEWEE: Πρώτα από όλα οι βασικές γνώσεις των συμμετεχόντων στα έργα, σχετικά με τις αρχές διαχείρισης του έργου δεν είναι η κατάλληλη. Οι άνθρωποι αυτοί έχουν τη συνήθεια να μένουν πίσω στο τρόπο εργασίας όπως ήταν στη δεκαετία του ογδόντα και του ενενήντα σε ορισμένες περιπτώσεις. Αυτή είναι η νοοτροπία που έχουμε εδώ και ενεργεί ως εμπόδιο μερικές φορές για κάτι νέο και καινοτομικό. Οι άνθρωποι λειτουργούν ως έχουν μάθει πριν από χρόνια και είναι δύσκολο για αυτούς να υιοθετήσουν έναν νέο τρόπο, όπως οι διαδικασίες και κανόνες της διαχείρισης έργων. Ωστόσο, δεν υπάρχει καμία ανάγκη να μιλήσω για τα συμφέροντα μεταξύ των σχέσεων των υπηρεσιών και, στα πολιτικά παιχνίδια, και ούτως καθεξής. Η κύρια απαίτηση της εταιρείας μας είναι να είμαστε ανταγωνιστικοί στην αγορά, έτσι πρέπει να ενεργήσουμε γρήγορα και με ακρίβεια όταν αυτό απαιτηθεί από την ανώτερη διοίκηση. Ως εκ τούτου, χρειαζόμαστε την υποστήριξη, σε τέτοια έργα, από όλους τους ενδιαφερόμενους και τα συστήματα πληροφορικής επίσης. Από την άλλη πλευρά, σε επείγον στρατηγικό σχέδιο χρειαζόμαστε τη στήριξη από όλους, έμμεσα ή άμεσα εμπλεκομένους. Τους διαχειριστές του έργου, τις μεθόδους, τα συστήματα τα εργαλεία, τα πάντα. (Σημείωση: ο συμμετέχων δίνει ιδιαίτερη έμφαση στην περίπτωση αυτή)

INTERVIEWER: What factors, according to your opinion affect the previous process?

INTERVIEWEE: First of all the background of people involved regarding project management is not the appropriate one. Sometimes, our staffs have the intension to stay back to nineties and eighties habit of work. This is our culture and sometimes acts as an obstacle for our innovation. People here behave according to what they have learned before years and seem difficult for them to adopt a new way, such as the project management process. However, there is no need to mention the departmental relationships, personal interests, politics, and so on. The main target of our company is to be competitive, so we must be fast and accurate when senior management asks for it. Therefore, in such projects, we need the support from all those involved but IT systems as well. On the other hand, in case urgent strategic project we need the support from everyone involved directly or indirectly. That means, the project managers, the methods, any systems tools, everything. (Note: Participant gave a special emphasis in this case)

INTERVIEWER: Παρακαλώ τώρα μπορείτε να περιγράψετε τη διαδικασία που χρησιμοποιείτε στην εταιρεία σας για την υλοποίηση αυτών των στρατηγικών σχεδίων;

INTERVIEWEE: Όταν έχουν προγραμματιστεί τα στρατηγικά έργα, στη συνέχεια, προστίθενται στο σύστημα διαχείρισης έργων μας. Έτσι μπορούμε να τα διαχειριζόμαστε σε κεντρικό επίπεδο. Η συσχέτιση μεταξύ των έργων και των απαιτήσεων μας δίνει την ευκαιρία να κατανοούμε τις μεταξύ τους εξαρτήσεις και για το τι απαιτείται από ποιον και πότε. Ποια υπηρεσία, οι άνθρωποι, τα συστήματα ή διαδικασίες απαιτούνται.

INTERVIEWER: Please now can you describe the process you are using in your organisation for the implementation of strategic projects?

INTERVIEWEE: When the strategic projects have been planned, then, they are inserted in our project server system. So, we can manage them centrally. The correlation that this software gives, between the projects and requirements, is helping us to understand the dependencies between the projects and what is needed when and by whom. That means what service, people, systems required.

INTERVIEWER: Τι συνέβη στην περίπτωση της επείγοντος στρατηγικού έργου;
INTERVIEWEE: Το περασμένο χρόνο, όταν ένα επείγον αίτημα ήλθε από την επιχείρηση για ένα νέο επενδυτικό προϊόν, προχωρήσαμε πολύ γρήγορα αλλά κατά εκτίμηση των απαιτήσεων με πολύ διαφορετικό τρόπο.

INTERVIEWER: What happened in case of an urgent strategic project?
INTERVIEWEE: Last year, when an urgent project request came from the business, a new investment product, we proceeded rapidly, but we estimated the project requirements in very different way than usual.

INTERVIEWER: Εννοείτε είχε αναβληθεί η κανονική διαδικασία και ακολουθήθηκε κάποια άλλη;
INTERVIEWEE: Ναι, δεν χρησιμοποιήσαμε την κύρια διαδικασία. Ξεκινήσαμε αμέσως την ανάπτυξη με ένα διαφορετικό γρήγορο τρόπο υλοποίησης του έργου .

INTERVIEWER: INTERVIEWER: You mean the normal procedure was postponed and you followed another?
INTERVIEWEE: We started immediately the development using a different and faster way.

INTERVIEWER: Τι συνέβη με την αξιολόγηση αυτού του έργου σε σχέση με τα άλλα στρατηγικά έργα;
INTERVIEWEE: Η αξιολόγηση αυτού του έργου έγινε από την ανώτερη διοίκηση και μόνο. Αποφάσισαν να προχωρήσει αμέσως και να πιάσουμε τις ημερομηνίες και προθεσμίας σε σχέση με τον ανταγωνισμό της ασφαλιστικής αγοράς.

INTERVIEWER: What happened in the evaluation of the project against other strategic projects?
INTERVIEWEE: The evaluation of this project was performed directly by the upper management. They decided to proceed immediately in order to catch the deadlines based on competition trends of the insurance marketplace.

INTERVIEWER: Ποια ήταν τα κριτήρια επιλογής του τρόπου εκτέλεσης του έργου? (Μέσα κατά την επιλογή portfolio, program or project management)
INTERVIEWEE: Χρησιμοποιούμε κατά βάση τη διαδικασία portfolio management, αλλά αυτό είναι όταν σχεδιάζουμε τα στρατηγικά σχέδια σε μια ετήσια ή τριετή βάση. Επίσης, όταν μια νέα πρόταση αλλαγής της στρατηγικής δεν είναι τόσο επείγουσα.

INTERVIEWER: What were the criteria during implementation route selection? (Means when choosing portfolio, program or project management routes)
INTERVIEWEE: Basically, we are using portfolio management process, but this is when we are planning the strategic projects in a yearly or three-years planning. This is also when a new proposal of strategic change perceived as non-urgent strategic project.

INTERVIEWER: Πώς διαχειρίζεστε αυτά τα στρατηγικά έργα;
INTERVIEWEE: Τα διαχειριζόμαστε με ομαδοποίηση και ταξινόμηση τους στα αντίστοιχα προγράμματα του κάθε τμήματος και ανά στρατηγικό στόχο.

INTERVIEWER: How do you manage those strategic projects?
INTERVIEWEE: By grouping and classifying them into corresponding programs per department and per strategic objective.

INTERVIEWER: Τι συμβαίνει στην περίπτωση επείγοντος στρατηγικού έργου;
INTERVIEWEE: Όταν έχουμε να κάνουμε με τη στρατηγική ενός επείγοντος νέου προϊόντος σε σχέση με τον ανταγωνισμό της ασφαλιστικής αγοράς τα πράγματα είναι διαφορετικά. Σε

αυτή την περίπτωση, δεν βλέπουμε τα άλλα μη επείγοντα έργα σε εξέλιξη, αλλά πώς μπορούμε να αντιμετωπίσουμε τις προθεσμίες παράδοσης του στρατηγικού έργου. Φυσικά, η διοίκηση των ατόμων των συστημάτων και καταστάσεων γίνετε πιο γρήγορα με ειδικό σχεδιασμό των πόρων, του χρόνου, του προϋπολογισμού και των νέων προδιαγραφών του προϊόντος. Αλλά, ο βασικά ο εχθρός μας είναι ο χρόνος παράδοσης του έργου.

INTERVIEWER: What happens in case of an urgent strategic project?
INTERVIEWEE: When we are dealing with an emergent strategy, say a new product, in order to be competitive, this is a different option. In this case, we see no other projects, but how can we meet the immediate delivery of that strategic project. Of course, the administration of the supportive systems becomes faster, with specially designed resources, time, budget and specifications. Actually, in this case, our enemy is the delivery deadlines.

INTERVIEWER: Για ποιους λόγους ακολουθήσατε διαφορετικές πρακτικές και μεθόδους;
INTERVIEWEE: Αυτό συμβαίνει επειδή πρέπει να είμαστε γρήγοροι και να βγούμε πρώτοι στην ασφαλιστική τοπική αγορά. Να προσφέρουμε τα νέα προϊόντα μας πιο γρήγορα από τους ανταγωνιστές μας. Ο στόχος της στρατηγικής μας είναι να πάντα είμαστε στην πρώτη θέση της τοπικής ασφαλιστικής αγοράς. Να έχουμε πάντα ένα ανταγωνιστικό εμπορικό όνομα και άμεσες υπηρεσίες.

INTERVIEWER: Why have you followed different pathways of implementation?
INTERVIEWEE: That's because we need to act rapidly and be the first name in the local insurance marketplace. In addition, be capable to offer our new products faster than our competitors. So, the current objective of our strategy is to be the first in the local marketplace. To have always a competitive brand name and direct support services behind.

INTERVIEWER: Γιατί δεν χρησιμοποιείτε την κανονική σας διαδικασία διαχείρισης έργων;
Η διαχείριση έργων σαν διαδικασία είναι πολύ πρόσφατη στην εταιρεία μας. Η υποστήριξη από τον project server είναι χρήσιμη, αλλά δεν μπορούν να καλύψουν αυτά τα επείγοντα περιστατικά στρατηγικών έργων όπως απαιτείται. Δεν είναι βέβαιο αν με τη χρήση αυτού του τρόπου διαχείρισης έργων θα μπορούσαμε να έχουμε τα επιθυμητά άμεσα αποτελέσματα.

INTERVIEWER: Why you are not using the normal project management process?
INTERVIEWEE: Project management is very new to our company (meant in relation “to our culture”). The support from project server software is useful, but it cannot cover the urgent

strategic projects. I'm not sure that if we use the classic (normative) way of project management, we could have the required results.

INTERVIEWER: Υπό κανονικές συνθήκες, ποιος εμπλέκεται στη διαδικασία διαχείρισης έργων και πώς;

INTERVIEWEE: Στην περίπτωση αυτή, τα ανώτερα διευθυντικά στελέχη κατευθύνουν και ελέγχουν τη διαδικασία υλοποίηση τους. Αυτό γίνετε με βάση τις απαιτήσεις της κατάστασης έκτακτης ανάγκης και τους περιορισμούς που προκύπτουν. Υπό φυσιολογικές συνθήκες, οι εκάστοτε διευθυντές του ομίλου ομαδοποιούν και γκρουπάρουν πρώτα έργα τους. Αυτό γίνεται σύμφωνα με τις επιχειρησιακές ανάγκες και κατηγορίες έργων που προκύπτουν. Στη συνέχεια, εισάγονται στο κεντρικό σύστημα για την αξιολόγηση και την περαιτέρω επεξεργασία τους.

INTERVIEWER: Who is normally involved, and how, in the project management process?

INTERVIEWEE: In this case, the senior management directs and controls the implementation of the projects. This is based on urgent action constraints and requirements raised. In normal situations, the departmental managers classify and group the projects. This is performed according to the business needs and related categories. Then, the projects are inserted into our project server environment for further evaluation and process.

INTERVIEWER: Συνοψίζοντας και σύμφωνα με την άποψή σας, ποιοι παράγοντες επηρεάζουν την επιλογή διαδρομής υλοποίησης των στρατηγικών έργων;

INTERVIEWEE: Πρώτα από όλα το επείγον της περίπτωσης ενός στρατηγικού έργου. Ένα νέο άνοιγμα στην αγορά είναι η πρόκληση για την επιτάχυνση και την υλοποίηση του έργου γρηγορότερα. Σε τέτοιες περιπτώσεις, δεν μπορούμε να χρησιμοποιήσουμε τον συνήθη τρόπο μέσω της τυποποιημένης διαδικασίας διαχείρισης έργων. Για να μπορέσουμε να ακολουθήσουμε τη διαδρομή μέσω του portfolio και program management χρειαζόμαστε περισσότερη εμπειρία και πιο ευέλικτα συστήματα και εργαλεία. Αυτό σημαίνει ότι πρέπει να γίνουν ώριμες αυτές οι διαδικασίες. Επίσης από πλευράς κουλτούρας αντιμετωπίζουμε κάποια ζητήματα. Αυτό δείχνει έμμεσα ότι δεν ήμαστε έτοιμοι ακόμα. Οι άνθρωποι δεν καταλαβαίνουν τις διαδικασίες εύκολα. Από την άλλη πλευρά, οι εν λόγω διαδικασίες θα πρέπει να υποστηρίζουν ένα περιβάλλον πολλαπλών έργων με κατάλληλα εργαλεία για την ευθυγράμμιση τους με τις τρέχουσες ανάγκες μας.

INTERVIEWER: In summary, in your opinion, what factors affects the implementation route selection for the strategic projects?

INTERVIEWEE: First of all, the level of urgency of the strategic project. A new market opens up the challenge for implementation of the project rapidly. In this case, we cannot use the normal project management following the standard process.
In order to be able and follow the path through portfolio and program management, we need to be more mature, but also have more flexible systems and tools. In few words that means we must become more mature in project management practices. Also, if we talk about our organisational culture, we are facing some issues. Those issues show us indirectly that we are not ready yet. Our staffs do not understand the discipline of normative project management process yet. On the other hand, the project management procedures should support our multiple projects environment, by the appropriate tools and be able to align with our current rapid implementation activities.

INTERVIEWER: Πιστεύετε ότι αν ακολουθήσετε τη κλασσική διαδικασία της διαχείρισης έργων δεν θα έχετε τα αναμενόμενα αποτελέσματα;
INTERVIEWEE: Βασικά, η αβεβαιότητα προκύπτει στα στρατηγικά έργα με ανάγκη για άμεση υλοποίηση. Αν ακολουθήσουμε τη πειθαρχία, που επιβάλετε θεωρητικά μέσω της κλασσικής διαδικασίας, πιστεύω ότι θα αποτύχουμε. Θα ήταν πολύ σημαντική και επωφελής εάν μπορούσαμε να κάνουμε τον προγραμματισμό μας πόρους χωρητικότητας με τις τρέχουσες διαδικασίες, αλλά αυτό είναι αδύνατο σε περίπτωση στρατηγικής μιας έκτακτης ανάγκης.

INTERVIEWER: Do you think that if you follow the normative process of project management you will not have the expected results?
INTERVIEWEE: Well, our uncertainty is based on strategic projects which need rapid implementation. If we follow the classical theory of project management, I believe this will cause the project failure. It would be very important and useful if we could make our capacity plans of available resources using the normative project management process, but this is not applicable in case of emergent strategy.

INTERVIEWER: Μπορείτε να περιγράψετε μια περίπτωση ενός στρατηγικού σχεδίου που ήταν επιτυχημένο; Μια σύνθετη στρατηγική υλοποίησης του έργου.
INTERVIEWEE: Μια υπόθεση που συνέβη ήταν το περασμένο έτος. Κατά τη διάρκεια μιας νέας εφαρμογής των σχεδίων του προϊόντος, είχαμε μια απρόσμενη πτώχευση της μια μικρότερη εταιρεία στον κλάδο. Αυτό προκάλεσε την άμεση δράση μας μετά από μια στρατηγική συμφωνία μεταξύ ημών και αυτών. Έτσι, βρεθήκαμε αντιμέτωποι με την πρόκληση για να πάρουμε και να εισάγουμε τις απαιτήσεις των πελατών τους και τις

προδιαγραφές τους στο νέο μας προϊόν, το οποίο ήταν ήδη υπό ανάπτυξη. Η συγχώνευση αυτών των νέων πελατών με τα υφιστάμενα αξιολογήθηκε ως επείγον έργο. Τι έπρεπε να κάνουμε; ακολουθήσαμε τη πιο δοκιμασμένη και σύντομη οδό υλοποίησης, όπως είχαμε κάνει τις προηγούμενες φορές στο παρελθόν.

INTERVIEWER: INTERVIEWER: Can you describe a case of strategic project that was successful? (a complex implementation)
INTERVIEWEE: We faced such case last year. During the implementation of a new product, we faced an unexpected bankruptcy of a smaller company. This caused our immediate action, after the strategic agreement between the two companies. We faced the challenge to insert new customers based on new requirements and specifications, in our new current product under development. This merge was characterised as an urgent project. So, we followed the shortest implementation path as we have done many times in the past.

INTERVIEWER: Αυτό σημαίνει ότι ήταν ένα νέο επείγον στρατηγικό έργο;
INTERVIEWEE: Ναι, πράγματι, αυτή ήταν ένα νέο επείγον στρατηγικό έργο που εμφανίστηκε απροσδόκητα και κατά τη διάρκεια της ανάπτυξης ενός άλλου παρόμοιου έργου. Αυτό απαίτησε να δοθούν νέες προδιαγραφές, να υπολογιστούν νέες προθεσμίες και, τέλος, αυτό ήταν η ανάπτυξη ενός νέου προϊόντος. Έτσι, προχωρήσαμε γρήγορα χρησιμοποιώντας μια διαφορετική προσέγγιση όσον αφορά σχέδιο διαδικασίας διαχείρισης έργου.

INTERVIEWER: That means it was a new urgent strategic project?
INTERVIEWEE: Yes it was an unexpected new urgent strategic project, appeared during the development of our new product. This required new specifications and project delivery deadlines. Finally, it was like developing a totally new product; so, we moved rapidly using different approach of implementation.

INTERVIEWER: Εννοείτε ότι δεν έχετε χρησιμοποιήσει την κανονική διαδικασία διαχείρισης μέσω program-portfolio management, όπως κάνατε πάντα;
INTERVIEWEE: Για να είμαι ειλικρινής εν μέρει, ναι. Αλλά αυτό το έργο αξιολογήθηκε πιο γρήγορα χρησιμοποιώντας πιο συνοπτικές διαδικασίες και διαφορετική προσέγγιση όσον αφορά τη διαχείριση του . Φυσικά το έργο αυτό ήταν το κύριο στρατηγικό πρόγραμμα και τα προϊόντα του κυρίως εταιρικού προγράμματος, αλλά, είχε προτεραιότητα και εμείς δεν χρησιμοποιήσαμε την βασική τυποποιημένη διαδικασία διαχείρισης έργων.

INTERVIEWER: You mean that you did not always use the normative program-portfolio management process?

INTERVIEWEE: To be honest, partially, yes. But this project was evaluated faster by using a more concise and different approach of project management. Of course, this project was part of our organisational strategic plan and company's program, but it was characterised as top priority so it was implemented in different way.

INTERVIEWER: Άρα, εννοείτε ότι χρησιμοποιήσατε διαφορετική διαδικασία;

INTERVIEWEE: Πρακτικά ναι. Σε αυτή τη περίπτωση απαιτείται η επικοινωνία με όλους όσους εμπλέκονται. Δημιουργείται άμεσα ένα high level πλάνο και συμφωνούν όλοι σε αυτό. Έπειτα μοιράζετε η εργασία στους εμπλεκόμενους και ορίζετε η επόμενη συνάντηση με τα αποτελέσματα

Σημειώσεις: Αυτό είναι απάντηση και το θέμα. Ποια είναι η εναλλακτική μέθοδος που χρησιμοποιείτε για την υλοποίηση των στρατηγικών σχεδίων (εάν όχι χρησιμοποιώντας τις προηγούμενες διαδικασίες); Για ποιους λόγους;

INTERVIEWER: So, you mean you used a kind of a different process?

INTERVIEWEE: Practically yes. In this case, we communicated with everyone involved. We created direct a high-level plan that everybody agreed with it. Then, we divided the work to those involved and set the date of the next meeting to review our deliverables.

Notes: This is answered also the question .What is the alternative method you are using for the implementation of strategic projects? (If not using the normative project management processes), and for what reasons?

INTERVIEWER: Για ποιους λόγους (παράγοντες) επιλέξατε διαφορετικό τρόπο;

INTERVIEWEE: Όπως εξήγησα πριν ο λόγος ήταν η επιτάχυνση της υλοποίησης, έτσι ώστε να αποφευχθεί η γραφειοκρατία και να παραδοθεί το έργο στην ώρα του και στην ποιότητα που απαιτείται, χρησιμοποιώντας ότι είχαμε από διαθέσιμες μεθόδους μέσα μοντέλα και εργαλεία.

INTERVIEWER: For what reasons (factors) did you select different path?

INTERVIEWEE: As I have explained before, the reason was the rapid implementation, in order to avoid bureaucracy and deliver the project on time and appropriate quality, using everything we had available, means methods models and tools.

INTERVIEWER: Κατά τη γνώμη σας ποιοι ήταν οι λόγοι (παράγοντες) της επιτυχίας ενός επείγοντος στρατηγικού έργου;

INTERVIEWEE: Πιστεύω ότι ένας σημαντικός παράγοντας στην υπόθεση αυτή, αλλά και σε οποιοδήποτε άλλο έργο, είναι να έχουμε την κατάλληλη ταχύτητα ανάπτυξης και τους κατάλληλους διαθέσιμους πόρους. Φυσικά πρέπει να υπάρχει και η κατάλληλη υποστήριξη από τα άλλα συστήματα πληροφορικής. Αυτό συμβαίνει επειδή τα άλλα έργα βρίσκονται επίσης σε εξέλιξη, οπότε ο κίνδυνος της αποτυχίας να είναι ο ελάχιστος. Έτσι, θα μπορούσαμε να είμαστε πιο σίγουροι όσον αφορά την υλοποίηση του έργου. Επιπλέον, η επικοινωνία μεταξύ των εμπλεκόμενων μερών είναι επίσης πολύ σημαντικό. Θα πρέπει να διαχειρίζονται τον προϋπολογισμό και τους πόρους ανάλογα με την περίπτωση και να διαθέτουν την ευελιξία ως προς τις ενέργειες υλοποίησης επίσης. Αποφυγή της γραφειοκρατίας, η διαδικασία να είναι πιο απλή, αλλά αποτελεσματική σε ολόκληρη τη διάρκεια της υλοποίησης.

INTERVIEWER: In your opinion, what were the reasons (factors) for the success of an urgent strategic project?

INTERVIEWEE: I believe that one important factor in this case, is to have the appropriate development speed and the appropriate resources available. But also this must be optimum in any other projects. Of course you need the appropriate support from the IT systems. This is because while other projects are also in progress, the risk of failure is minimised. So, we can be more confident regarding the implementation of the project. In addition, communication between the involved parties is very important. We must manage the budget and the resources as appropriate and have the appropriate flexibility in the implementation tasks. Avoid bureaucracy, be more simple, but efficient during the implementation process.

INTERVIEWER: Τώρα, θα μπορούσατε να περιγράψετε την περίπτωση μιας αποτυχίας υλοποίησης ενός έργου; Κατά τη γνώμη σας, ποιοι ήταν οι λόγοι (παράγοντες) που προκάλεσαν την αποτυχία; (Οι συμμετέχον κλήθηκε να διηγηθεί μια ιστορία σχετικά με την εμπειρία του όσον αφορά την αποτυχία του στρατηγικού έργου).

INTERVIEWEE: Δεν μπορούμε να πούμε ότι ήταν μια απόλυτη αποτυχία, αλλά μπορούμε να πούμε ότι το προϊόν δεν ήταν στο απαιτούμενο χρόνο παράδοσης στην αγορά. Αυτό συνέβη πριν από μερικά χρόνια, όταν καθιερώθηκε για πρώτη φορά το πληροφορικό σύστημα διαχείρισης του έργων. Είχαμε μικρή, αν όχι καθόλου εμπειρία σε τέτοια συστήματα και, βεβαίως, στη διαδικασία διαχείρισης του έργου επίσης. Η ευθυγράμμιση με τα άλλα συστήματα πληροφορικής ήταν απίστευτα δύσκολη. Οι άνθρωποι που ήταν σε ομάδες ανάπτυξης, δεν μπορούσαν να το καταλάβουν ή δεν ήθελαν να το υιοθετήσουν στην καθημερινότητα τους. Οι περισσότεροι από αυτούς ήταν ανεκπαίδευτοι στην διαχείριση

έργων και η κουλτούρα της εταιρείας ήταν σαν είχε κολλήσει στους παλιούς καλούς απλούς τρόπους υλοποίησης των έργων όπως γινόταν αυτό στο παρελθόν.

INTERVIEWER: Now, can you please describe a case of project implementation failure? In your opinion, what are the reasons (factors) for such a failure? (Participants were asked to narrate tell story about their experience of a strategic project failure).
INTERVIEWEE: We cannot say that it was a total project failure, but we can say that it was not "on time" delivery of a product into marketplace. This is happened before some years, when we first established our new IT project management system. We had very low maturity with it and of course in project management process too. The alignment with other IT systems was incredible difficult. The people in the development teams could not understand it, and on the other hand they did not want to include it in their every day work. Most of them were untrained in project management and the company's culture was stacked in the old good simple ways of implementation.

INTERVIEWER: Για ποιους λόγους ο οργανισμός σας χρησιμοποιεί ή όχι τη διαδικασία portfolio management;
INTERVIEWEE: Χρησιμοποιούμε τη διαδικασίας portfolio management αλλά προσαρμοσμένη στις ανάγκες μας. Έχουμε την κεντρική άποψη και τον έλεγχο των έργων μας. Ο λόγος είναι ότι η λειτουργία αυτή προσφέρει ένα είδος ευθυγράμμισης με τους βασικούς στρατηγικούς στόχους της εταιρείας μας. Ωστόσο, αυτή παραβλέπεται στην περίπτωση που χρειαζόμαστε ταχύτητα υλοποίησης σε ένα επείγον στρατηγικό έργο.

INTERVIEWER: Why is your organisation is using or not using portfolio management?
INTERVIEWEE: We are using portfolio management process, but it is modified to support our requirements. We have a central view and control of all our projects. The reason is that function offers an alignment with our organisational strategic plans. However, this process is overlooked in case of an urgent strategic project.

INTERVIEWER: Για ποιους λόγους ο οργανισμός σας χρησιμοποιεί ή όχι τη διαδικασία program management;
INTERVIEWEE: Οι λόγοι είναι οι ίδιοι όπως αναφέρθηκε προηγουμένως. Λοιπόν, οργανώνουμε τα στρατηγικά σχέδια μας σε ομάδες έργων και προγράμματα. Έτσι μπορούμε να προβλέψουμε τους πόρους, τους ανθρώπους και τους οικονομικούς προϋπολογισμούς που απαιτούνται επίσης. Από την άλλη πλευρά, μπορούμε να ελέγχουμε και να διαχειριζόμαστε

τα έργα που έχουν κοινές απαιτήσεις με τα συστήματα και ανθρώπους για την υλοποίηση τους.

INTERVIEWER: Why your organisation using, or not using program management?
INTERVIEWEE: The reasons are the same as those mentioned previously. Well, we are organizing our normal strategic projects into groups and programs. So, we can forecast the capacity of resources and budgets. On the other hand, we can cross check and manage projects based on the same needs of IT systems and people.

INTERVIEWER: Για ποιους λόγους ο οργανισμός σας χρησιμοποιεί τη διαδικασία project management;
INTERVIEWEE: Λοιπόν, χρησιμοποιούμε την εφαρμογή του MS project server με βασικό template (φόρμα) έτσι, μπορούμε να δούμε τα μέρη όλων των έργων σε λεπτομέρειες. Έτσι, όλοι όσοι συμμετέχουν γνωρίζουν τα καθήκοντά τους. Αυτό μας δίνει απλώς την εμπιστοσύνη των γνωρίζουμε τι πρέπει να γίνει, πότε και από ποιον.

INTERVIEWER: Why is your organisation using project management?
INTERVIEWEE: Well, we are using MS project server with a basic project management template, so, from there we can see the plans of all projects in a more detailed level. So, the people involved know exactly their tasks. We have the confidence that we know what is to be done, when and by whom.

INTERVIEWER: Σε ποιο επίπεδο ωριμότητας σε σχέση με τη διαχείριση έργων πιστεύετε ότι βρίσκετε η εταιρεία σας;
INTERVIEWEE: Νομίζω ότι είμαστε σε ένα μεσαίο επίπεδο.
INTERVIEWER: Πιστεύετε ότι αυτό παίζει κάποιο σημαντικό ρόλο για τη χρήση διαφορετικών τρόπων υλοποίησης.
INTERVIEWEE: Ναι πιστεύω ότι αυτό παίζει σημαντικό ρόλο, αλλά δεν είναι ο μόνος λόγος.
INTERVIEWER: Παρακαλώ μπορείτε να περιγράψετε άλλους λόγους ή παράγοντες που επηρεάζουν αυτές τις αποφάσεις;
INTERVIEWEE: Ναι, όπως αναφέρθηκε προηγουμένως η ταχύτητα είναι ένα από αυτά. Ο τρόπος και η μεθοδολογία της διαχείρισης του έργου που χρησιμοποιούμε σήμερα έχουν κινδύνους. Θέλω να πω, όπως γίνεται τώρα και τον κίνδυνο που έχουμε στην περίπτωση των επειγόντων προθεσμιών παράδοσης.

INTERVIEWER: At what level of project management maturity is your company?

INTERVIEWEE: I think that we are in a middle level.

INTERVIEWER: Do you think that using different ways routes plays an important role in projects implementation?

INTERVIEWEE: Yes I believe this plays an important role, but it is not the only reason.

INTERVIEWER: Please, can you describe any other reasons or factors that affect this decision?

INTERVIEWEE: Yes, as I have mentioned previously, the implementation speed is first. The way and the methodology of project management using today have a risk. I mean as it is today includes risk, in case of emergent project deadlines.

INTERVIEWER: Κλείνοντας τη συνομιλία μας, έχετε να προσθέσετε επιπλέον σχόλια σχετικά με την εφαρμογή στρατηγικών προγραμμάτων;

INTERVIEWEE: Στην πραγματικότητα, ένα πράγμα θα ήθελα να πω εδώ είναι ότι η διαχείριση έργου προσφέρει πολλές δυνατότητες, αλλά πρέπει να ευθυγραμμιστεί με τις οργανωτικές ειδικές ανάγκες μας. Σε περίπτωση επειγόντων στρατηγικών σχεδίων αυτό είναι πολύ σημαντικό. Για την επιτυχή εφαρμογή ενός στρατηγικού έργου είναι να εκπληρωθούν οι στρατηγικοί στόχοι της εταιρείας μας. Η ταχύτητα της εκτέλεσης, όταν αυτό απαιτείται είναι ο οδηγός..

Από την άλλη πλευρά, όπως ο ανταγωνισμός στην ασφαλιστική αγορά αυξάνεται συνεχώς, κάθε έργο φαίνεται να είναι πλέον επείγον, χρειάζεται ιδιαίτερη προσοχή. Έτσι πρέπει να προσαρμόζουμε τη διαχείρισή των έργων σύμφωνα με τις ανάγκες μας και όχι τις ανάγκες μας σε αυτό.

INTERVIEWER: Closing our conversation, do you have any additional comments regarding strategic projects implementation?

INTERVIEWEE: In fact one thing I would like to say is that project management offers a lot of excellent benefits, but we must align them to our special organisational requirements. This is very important in case of an urgent strategic project. For us, successful projects are the projects which fulfill our strategic goals. The implementation speed is the driver in this case.

On the other hand, as the competition in the insurance marketplace is growing continuously, so every project seems to be an urgent one and requires special attention from us. So, we must adapt the project management process with our needs and not our needs with it.

INTERVIEWER: Έτσι, εννοείτε αυτός είναι ο λόγος που χρησιμοποιείτε μεμονωμένες τρόπους υλοποίησης;

INTERVIEWEE: Πρέπει να προσαρμόζουμε την ισχύουσα διαδικασία σύμφωνα με τις ανάγκες μας και να ακολουθούμε τις βέλτιστες πρακτικές για την υλοποίηση των στρατηγικών έργων.

INTERVIEWER: So that's why you are using different implementation ways?
INTERVIEWEE: We must adapt the current project management process to our needs and follow the best practice for the implementation of the strategic projects.

INTERVIEWER: Εννοείτε ότι αυτό συμβαίνει σε κάθε επείγον στρατηγικό έργο;
INTERVIEWEE: Κάθε επείγον στρατηγικό έργο απαιτεί διαφορετική προσέγγιση, λόγω των διαφορετικών προδιαγραφών του. Αλλά μπορώ να πω με σιγουριά ότι τώρα έχουμε την εμπειρία και ξέρουμε πώς να αντιμετωπίσουμε παρόμοιες καταστάσεις κατά τον ίδιο τρόπο κάθε φορά. Επειδή είμαστε γρήγοροι στην υλοποίηση αισθανόμαστε πιο ασφαλείς εφόσον ακολουθούμε τη τετριμμένη επιτυχή οδό.

INTERVIEWER: So, this happened in every urgent strategic project?
INTERVIEWEE: Every urgent strategic project requires different approach, because of its different specifications. But, I can say with confidence, that we now have the experience and the maturity to deal with it, as we are following every time the same successful way of implementation. While we implement it rapidly, using our way, we feel safer, so, we are following the same successful path again and again.

---------- End of transcript ----------

Justification of the translation issues

There are always some problems in the translation process: ambiguity, structural and lexical differences and idioms and collocations. According to Ervin et al (1952-53), translation distortion may arise from differences in the meanings of words, syntactical and cultural contexts. On the other hand, another problem is the grammar. The following discussion is concentrated to the possible misunderstandings and shifts of sense making that might occur during translation, especially in management terms from Greek to English. However, for practical reasons many of the cues for meaning present in speech are absent in writing. The researcher tried to demonstrate rigour in translation from Greek to English.

According to Filep (2009), understanding every language as mirroring a cultural and societal background, therefore, translation requires to identify which is a better translation strategy, literal or non-literal translation. Translating words or phrases that may exist in one language

but do not have an exact equivalent in another and the meanings and messages that words or phrases carry in one cultural context and not in another. Moreover, in dealing with matters or participants' attitudes or ideology, the researcher tempted to translate directly and literally. However, there are cases of meanings which cannot be expressed directly. The first step was to identify first the meanings of words and then to construct the correct meaning. Some of the sentences of the transcript are translated with "affective and figurative meanings", as in translations a choice must very often made between the objective referent or a figurative meaning (Ervin et al 1952-53). That means the researcher tried to give the appropriate meaning based on realistic and strict translation but expressed with the appropriate English words to construct the final meaning. Additional aspects of validity crop up at the analysis stage, when the researcher interpreted the respondent's reactions to items with knowledge as complete as possible of the meaning. Furthermore, this is performed in order to translate and express the management concepts as they expressed by the participants during the development of the transcripts from interviews.

The words that are hardest to translate are most common words, whose precise meaning depends on context. Besides, some words are untranslatable when one wishes to remain in the same grammatical category. For example the noun "Νους" in Greek means "Mind". The adjective "Νοητός" (=Mind+"-τός") means "what appears to the mind", "what is (or can be) conceived (or visualised) by (or in) the mind". "Being Νοητός" is quite distinct from "intelligibility" (comprehension or understanding). Therefore, the correct English translation of "νοητός" cannot be "intelligible" but it could be "mentally" or "have the feeling" In our case means that "*the upper management could not understand or even had the feeling for the truth about what is happened, so, that caused the delay of the deliverables, because there was no reliable report for the actual status of the projects*".

Another example is the translation of the "προκείμενη επείγον στρατηγική" "«emergent strategy». Mintzberg (1987) made a distinction between deliberate strategy and emergent strategy. Emergent strategy originates not in the mind of the strategists, but in the interaction of the organization with its environment (here, the local insurance marketplace). The same approach is for the urgent strategic projects regarding the new insurance products. Therefore the translation of the meaning regarding urgent strategic projects is in reflection with emergent strategy as events that drove the factor of speed in projects implementations.

Another example is the meaning of word "hypothesis" in Greek language is in some cases different from its English equivalent. In this case the term "hypothesis", referred in the

transcripts, has the meaning of making the logical “assumption” that something must be or exists.

“When the sales department initiates a new product for market opening, the assumption (a hypothesis) is that we must be ready and alerted at once to act immediately”.

In other words, the project manager in this case assumed (Υποθέτει) that the development project team should to be ready to face the emergent strategy. So, the word "Υπόθεση" in the related passage is translated as “assumption". This translation is fine, properly understood in Greek. There are also good reasons for using the English word “supposition" here. Both words express the same concept in Greek if we recognise that both words have the capacity to refer to that meaning.

During conversations, the participants often expressed project management terms in English. In such cases, this was very helpful during the translation of the transcripts from Greek to English. Beyond this, the project and business management terms translated strictly and with rigour. In addition, some words have exact counterparts in English language.

Examples of non required translation of management terms

Project management, portfolio management, program management, high-level plan, management team.

Examples of translation of management terms

το ανταγωνιστικό μας πλεονέκτημα = competitive advantage
να δράσουμε άμεσα = act immediately.
διαδικασία στρατηγικού σχεδιασμού = strategic planning process
προγραμματισμένων παραδοτέων = planned deliverables
αυτή είναι η νοοτροπία = this is the culture
ανώτερη διοίκηση = upper management

DOCTOR OF BUSINESS ADMINISTRATION

Document six

A reflective journal

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"Document 6 is submitted in part fulfillment of the requirements of the Nottingham Trent University for the degree of Doctorate of Business Administration"

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1. Introduction

A researcher's reflection is a cognitive activity that engages, but is not restricted to, capturing, giving consideration to and considering experiences (Boud et al, 1985), looking back to front and projecting forward to the future (Jarvis, 1987) and also stepping back from what one is doing in order to achieve some measure of perspective (Ellis, 2001). Janesick (1998) discusses the contribution which journal writing can make to the researcher to illustrate significant points. The role of research journals, in the work of researchers, is an issue we still know very little about. The potential benefits to readers of journals are similarly unexplored terrain (Borg 2001). Journal writing is a type of connoisseurship by which individuals become connoisseurs of their own thinking and reflection patterns and, indeed, their own understanding of their work (Janesick 1998). It is also a tangible way to evaluate our experience, improve and clarify one's thinking, and to become a better scholar. These are but some of the issues I want to take up here and to explore in more detail in relation to my own experiences.

This document is the final one in a series of six, written as part of my DBA study. I would like to start my reflective journal by being honest and saying that starting the DBA was not a simple decision in regards to the cost, time, and family obligations. I believed, however, that it would be one of the greatest steps of my life. I had tutelage from some of UK's foremost academic experts at NTU. Moreover, this subject matter expertise was delivered within a structured DBA framework and plan. I think this DBA should be one of the most successful and admired applied business doctoral programs in Europe.

In the following paragraphs, reflective writing will provide much insight into the personal processes which I have experienced during the DBA course, and I hope the written accounts may have benefits for the reader. I will reflect on the implications that my study may have in my life and project management context as well. I will document the ways I was thinking about the DBA course and connecting it with other things like personal and professional life, i.e. obstacles faced in relation to the meaning that Barab et al (2001) and Fusco et al (2001) gave on how scientists do science.

As an index of my experiences (Redman 1995), a diary was kept of critical incidents, thoughts and emotions as they occurred over the duration of the DBA study. The point I want to make here, then, is that reflective writing is acknowledged also as a useful tool for both promoting and understanding professional activity and growth. Furthermore, I will report my reflections on the DBA experience as well as on my personal, professional and research project development. Moreover, I will try to avoid the linear time list approach, rational and

goal-oriented (Bryman 1988), by following my narrative plan and I hope that it will make my experience appear more structured. Finally, since English is not my native language, you might find some mistakes here and there in my journal, however, please try to catch the message that I am trying to deliver and you might find some notable meanings inside it beyond my limited English.

2. Learning

In the beginning, my DBA felt daunting by the sheer scale of the work I was undertaking. Tackling a major piece of research, for which you are solely responsible, is undeniably intimidating. Questions zipped through my mind: Where should I begin? How would I know when 1 had done enough? Would I ever settle on a suitable research question?

My first inquiry began with an effort to identify the issue as initially set. More specifically, the initial problem was framed as the relationship between strategic decisions and their implementation through the project management process, as these were depicted in the conceptual framework. My starting point was based on the argument that theory must be open to correction and modification in the light of what we learn in practice (Hammersley, 2000).

During the DBA, my weekdays were shared between my paid work, my family and my study, (to which I devoted every early morning and many hours late at night). Like me, I think most of the other DBA colleagues had to do a balancing act between children, DBA and careers. A "how to juggle everything successfully and do a DBA before breakfast... or late at nights" account would sound smug as I had a long stretch ahead before I could trudge to the finish line. I've had my ups and downs, however, and learned some serious lessons along the way. These are worth sharing.

My first year as a DBA student was spent reading everything in sight. I had to decide upon the research questions. Anxiety brewed as the time slipped by, what good was the ability to read quickly, when I hadn't a clue what I was reading for? I had ideas, but I was torn between them. The next inquiry then became a fear filled, self critical question 'Why am I doing this?'

Nevertheless, more self contained, straightforward (and less controversial) themes in the topic of "Project management links" were defined and my mind was awash with the intricacies of each. Choosing a significant topic (The Link between Strategy and Project Management) has meant that my research was like a good novel, impossible to put down. Throughout the past three years, when dropping with tiredness after my daytime responsibilities, I have gathered the energy to return to my office. Even at night, I moved forward with my DBA.

During the first year, I started gathering a few articles for my first documents. I wanted to do an indepth review of the literature regarding the “Project management in relation to Strategy”. As I had started reading, however, I realised that there were so many different directions I could take with this study. I was hoping to gather research so that the picture of what I hoped to do would become clearer to me. I had found really some great articles to include in my review of the literature. I have to honestly say that with all of this information at my fingertips, I began to realise what a daunting task this could be to blend it all together. As Ramsden (1992) stated, comprehend the world by reinterpreting knowledge. I had planned to do a review of literature that evaluated various strategies that had been used to implement projects through the project management context. As I was researching, however, I had difficulty finding articles that directly discussed my research topic been implemented. There were many articles that told what processes were available, but very few regarding the direct link between strategy and project management.

The investigation and understanding was also on how each of the factors found may affect, and simultaneously retrieve, the knowledge of how a change in any one of them may affect the others as well as the project management context (PMC). This mental relating and grouping of associated perceptions is called insight by Gilman (1984). This integration encompassed both digestion and synthesis of new theories regarding factors behaviour.

Starting with the confidence that success brings, I discovered that the discipline imposed by the documents deadlines had become a habit (a bit stressful), and the concept of late-night study so familiar that it was almost routine. Positive motivation was essential for this internal integration (Smith 1999). The DBA had honed my writing and research skills, and drastically improved my reading speeds. The more you read, the more quickly you digest the required information. In spite of my somewhat disciplinarian training during my MSc at OU, there were still some aspects of study for which I was not prepared in the slightest.

As those who are doing this particular form of study will know, the price of doing a higher degree bears a heavy personal cost. Since 2006, I have spent several nights burning the midnight oil, when I know I have to be up next morning to go to work. I have sacrificed all my hobbies I once enjoyed, no longer training, mucking around, engaging in fitness, reading astrophysics books or taking part in any family events. Although I tried not to let study encroach on weekends, there have been Sundays when I have guiltily left my family to their own devices, while I spent a day in my office, working on the documents. I have fought to balance my research with my paid work (which also involved working in the evening) as well

as with (most importantly) ensuring that my family does not suffer as a result of my wish to study. After the most recent incident, I did find myself seriously asking the question: “Is this worth it? Is the personal cost of doing a DBA really worth it, if this is how people are going to behave?”

I have considered why my research topic causes such extreme reactions. Evidence in the literature suggests that this may be because my DBA, although it does not claim to be a paradigm shift, probably reflects several, which is what makes it so contentious. The first paradigm shift may lie in the very fact that I am already an experienced project manager doing a higher degree. The second paradigm, that of the research topic, represents a major change of direction in project management context theory.

According to Merriam et al (1998), the development of my study had behaviourist orientation learning as I used procedures to study behaviour of project management in the organisational environment. On the other hand, the research process can be characterised as being in the sphere of cognitive orientation towards learning concerned with cognition as the act or process of knowing.

Although it is not so much that I learned by acquiring structures or models to understand the project management context, I did have the experience of participation in such frameworks structures while also being an observer. Observation, however, was also facilitated by my participation in practice. In humanistic orientation, I had a reaction against ‘scientific’ reductionism (Tennant 1988, 1997), as people being treated as objects (Human Factor) and rationalism. Instead, the affective and subjective world was to be reaffirmed through “Human Factor” influence.

There were many learning experiences, some more or less significant than others. The DBA work required critical investigation into practice and learning. The DBA, from a learning point of view, however, did give me the skills to conduct a leadership study rigorous enough to be adjudged, for example, with modern trends like PMI’s organisation OPM3, the world’s foremost standard on Organisation Project Management Maturity Model. I also believe that this DBA is pragmatic enough for the research findings to become the basis for further future research. Of course, the specific knowledge gained, such as the qualification, is only the immediate result of a successful DBA. I am still convinced that my topic is an important one, worth researching, even if it is controversial. The most positive aspect of research in literature has been the opportunity to work on a variety of different project management theories. It was extremely beneficial to trace the development of theory on project management. The enduring

benefit was the development of an enquiring mind and also the associated skills needed to rigorously analyse the opportunities for, and deliver high quality solutions to support, ongoing organisational improvement. So, this year, when I was asked to manage the "Paperless Company" large project at my organisation, the skills learned on the DBA were once again much in demand.

3. Personal Development

The second change, in my beliefs and attitudes, pertains to my understanding of life-long learning. I now find myself in constant search for learning and growth in my professional and personal life. Reading, reflecting, questioning, and searching for dialogue have moved to the centre of my view. I find I am constantly pushing my boundaries for success. I firmly believe that I am now on a learning curve. When I make an error or face conflict and lack of success, it is not a reason for defensiveness but, instead, a signal that I have something more to learn. For me, the DBA was an outstanding personal and academic experience and it was essential that my DBA had local Greece accreditation. This was an additional decisive factor of enrolling. I found the DBA program rigorous and lecturers were senior-level, world-class academics.

Furthermore, the DBA was a practical, life-changing experience that made me look at the world differently. It had a quality of personal involvement (Merriam et al 1991), as I was involved in both the feeling and cognitive aspects of the research event. I now have a more global perspective on business and a much better understanding of internationally based research. Throughout the DBA, I've learned to think more carefully, in detail and critically. I've learned to acquire, organise and present information, to think logically, laterally, critically and creatively as well as to analyse and synthesise arguments. I think this gave me the capability to start working autonomously and collaboratively in order to carry out any future research activities by utilising information appropriately and competently. This also had an impact in my daily professional behaviour to act effectively when decision-making and problem-solving. On the other hand, I have learned from my mistakes and erroneous assumptions. I am determined not to allow this to get me down and continue to develop my knowledge, skills and attitudes.

The methodological perspectives opened my mind to different ways of thinking. Qualitative and quantitative approaches made me think from different angles regarding the analysis and perceptions of a research subject. From the perspective of research knowledge development, I think I have learned how to collect information from a variety of sources, using different techniques, as well as how to manage, manipulate and present them in a range of formats. I

can now demonstrate confidence and familiarity with a range of information sources and information management techniques. I have also learned how to express detailed knowledge while also incorporating, contextualising and applying new knowledge effectively in new situations. I think I can evaluate and select the most appropriate sources and collection of analysis techniques. Moreover, I can now engage in constructive and critical review of new and emerging knowledge sources.

I think I have got a sense of confidence in the power of rational thought and the range of its applicability. Everything in life is a problem of some sort or other. How often do we think about it that way, and approach methodically the job of solving it? After the DBA, I feel that I have gained the inclination and ability to research and understand anything, whether it is Technology or Business. The DBA gave me the confidence and proclivity to question all that is around and seek out new ways of doing or seeing something. I can now ask why things are done a certain way, and how it could be made better.

It gave me the confidence to jump into a new area, pick it up quickly, and have something interesting to say about it, even if other people have looked at this area for a long time. More than depth in any one area, it gave me the courage to jump from area to area. My appreciation for creativity increased, in other people and in all areas of life. I can view art differently, or think differently about the music I hear, more appreciative of what it took to do this and how it departed from the previous works. I learned to value creativity and seek it out. The DBA instilled in me a sense of taste and a critical sense on my personality. I'm now unwilling to accept the common standards and norms, and to put them to the test of my own intellect and opinions. I find myself naturally questioning things now and am willing to contradict conventional wisdom by being constructively critical.

4. Professional Development

The DBA enhanced both the capability to develop knowledge and theory, as well as the application of it. DBA research has deepened my internal commitment to my profession and its future. I believe if we want to make an impact on our profession, there is no better way than to study it from within. Since my initial contact with project management research, I have increasingly sought out learning the environment that fosters this internal commitment to that profession. The benefits, or otherwise, of combining work and profession are debated in many arenas.

How has doing the DBA helped with my professional development? There are two types of benefits to this. The first is that I think more clearly now and, most importantly, I have

discovered how to learn. It helped me to reflect on, and articulate, my previous experiences and knowledge while my professional practice understanding increased as well. I examined habitual ways of thinking and acting that was taken for granted. I have also acknowledged my strengths, skills and weaknesses.

Furthermore, I have undoubtedly developed, through completing the DBA challenges, how to interact with other researchers and research institutions (like PMI research, IEEE, etc) as well as how to immerse myself into my field of research. The extensive reading of many top scholars has supplied me with a large knowledge base of very powerful theories and ideas which I find I can apply in many aspects of my life with very positive results. As a consequence, I perform more effectively in my work and in how I approach the things I do. The other benefit is exemplified by some of my work as project manager. While undertaking the DBA, I have also undertaken large, internal, organisational, strategic projects assignments.

The DBA has also taught me to think more, listen more and reflect frequently. The research introduced me to many powerful theories and models on project management, how organisations work and how abstract concepts (i.e. invisible influencing factors within organisations) such as creativity, flexibility, knowledge and learning, can be understood and utilised.

Without always being conscious of how I draw on my new knowledge, I can state with certainty that the DBA played a part in improving the speed with which I engaged and reached a high level of trust with projects; it showed how we interpreted issues and challenges and then helped me to implement creative options and, very importantly, it helped me to see the invisible forces at play in organisations (influence factors, flexibility in projects implementations). By performing at this higher level, I unquestionably achieved valuable results. I seemed to navigate the challenges with grace and not battle through them. The DBA has introduced a very exciting fluidity to my work which creates many satisfying outcomes.

5. Project Development

I have passed some difficult phases during the development of the first DBA documents. When I received negative feedback on the work, started questioning the value of what I was doing and wasn't feeling good about any of it, I realised that I'd been a bit misguided in the direction I'd gone and invested effort in over the last few months. I had tried to write without having done enough analysis of my data. Many times, I fell into the novice researcher's trap

of getting so excited about writing that I selected data which gave a neat picture of things and ignored anything which tended to make it messy.

Moreover, the data evaluated whether they were meeting the research needs, whether they led toward what I wanted to know and whether they illuminated the dark area of ignorance I was experiencing. The locus of evaluation, we might say, resided definitely on me (Rogers 1993). Now I can see this was a contradiction in terms for any qualitative researcher, because the reality I was investigating was messy, and it was not my job to explain away that messiness but to attempt to present it and understand whether there are systematic patterns of thinking and behaviour underlying it. That is what my research was all about. So my decision here as I moved on, was to stop writing and to continue analysing. I guess this was kind of a turning point in my work. I had become aware that I had developed an unconventional view of what my work was. I knew I had good data which had the potential to tell something about project management links in organisations. It was just a question of me getting rid of this misguided desire to finish and to focus on the next document.

In the first document, I was wondering how to start and I struggled to include all of the things in my mind into a limited space of writing and time. Later, I realized that, since I was not writing in my native language, there were several classic mistakes and erroneous expressions that troubled me. The resolution came by the excessive proofreading applied with the help of a friend in Australia. An additional dilemma I faced during the progress of the first document was the great quantity of information I had found and the chaos it was in. Even though I had a specific research target, the supportive literature was not comprehensible and great effort and care was taken to classify, integrate, abstract and then retrieve the best of the relevant information for the document. After many amendments, the document was molded into the required shape and I finally passed it. This seemed like a great success to me. Every time I submitted a document successfully, I felt encouraged to continue.

In the meantime, the deadline for the second document was approaching dangerously fast. It was summer and everyone was on vacation, except me. I was in my home-office searching through the hundreds of articles to discover the hidden sense for my research inquires. From the beginning, document two developed with a more sensible structure. The literature review began as a largely subconscious process, with my mind exploring a great many possible associations between the new findings I had gained through immersion and the knowledge I already had.

The scope was to collect all of the required information to construct the sections in an explanatory form, define the links and extract the influencing factors. The information itself needed to be interpreted which required critical and analytical skills. I had to return to my initial question to avoid missing the point several times. At times I felt that I was not getting anywhere. Part of the process, at this stage was a further analysis of the appropriate morphogenetic fields. This took time for the new findings to sort themselves into their proper places with the helpful influence of these fields. I now understand that this is all part of doing research and, over time, I discovered some interesting themes. At the end, the references and the document itself were huge. I had put so much information that would require more than a year to integrate them and reduce the document.

Though in front of the limited time I had, I submitted it as it was. Later, the assessment feedback came as expected. The document was lengthy and it needed integration in sections and, of course, better classification of all that information. Fortunately, the corrections were applicable in the way they were suggested by my supervisors. Simultaneously, I had started working on document three, planning for interviews and arranging meetings. This period was very hard for me, as I had a lot of work to do on both documents and then an unexpected change in my professional life occurred. There was a change in my career path as I moved to a different company. For at least five months, this was a very difficult situation. I was trying to adapt to my new work position requirements, while simultaneously correcting both documents (at night). I was making interviews, canceling some of them and then re-planning, again and again. This took up a lot of my time and I did my best to catch the submission dates of the documents.

In document three, I discovered the advantage of using semi-structured interviews which I then used again in document five. This gave me control over the process of obtaining information while the participants were simultaneously free to follow new leads as they arose. During the interviews, the intention was to obtain the participants' views on the phenomena under investigation. The interviews enabled me to gain explanations and information on material that was not directly accessible: perceptions, attitudes and values. This allowed me to achieve a deep well of information, by providing the opportunity to probe and expand the interviewee's responses. I tried to have a balance between me and the interviewees in order create the right situations for negotiation, discussion, and expansion of their responses. Another thing I have learned was that, by the nature and direction of the questions, I could ascertain the real meaning from the interviewees’ responses.

The truth is that I also discovered that an explanation does not only have one location, one perspective, one reality. There were multiple perspectives and multiple realities, and the positioning of the interviewee cannot be limited. I found that, as a consequence, I was limited by my experience and knowledge. I realised that, if I had excluded the possibility of diverse responses and looked for confirmation of previously held notions, knowledge would not have been advanced. In researching the implementation paths, this had the consequence of constructing a partial or ideal view of the project management context.

In the beginning, the mistake was that through my questions I had created a framework that forced the participants to respond in ways which resulted in a construction of my own making rather than representing the realities of the organisational context. The view that was created might be conscious or unconscious, but I had the power to construct such a view and to exclude contradictory or alternative views from surfacing. In document five, I had already learned to be sensitive to the cognitive and social framework and ask questions in such a way to not make them too sophisticated for the participants to understand. So, the target was to avoid feigned understanding by the participants and to get answers that were honest and satisfied me.

In the next step, for the development of document four, I studied many books and guides on qualitative research and analysis. I found that the researchers and authors all had differing views and opinions I personally tried to make my own method as a mix from some of them. Finally, I believed that quasi-statistics analysis, in this case, would give a better picture of the findings.

Furthermore, the same happened with document three re-submission and document four preparations during next year. The problems I faced were various. During the development of document four, as it was summer again, most of the survey participants were already on vacation. I was struggling and stressing trying to contact the rest of them, begging them to fill in the online questionnaire before they left on their own vacations. I was very lucky as I collected enough questionnaires in order to go on to the statistical analysis. During this period, I tried many different statistical analysis types using SPSS 16 and XLStat 2008. These tools were fantastic as they calculated everything fast and gave me results in many ways and from different observation angles. I would like to say that I had the opportunity to search and try multiple ways of statistical analysis, however, not all of them were appropriate or fitted in with the specific requirements of my study. Finally, after the suggestion by my supervisors, I used only those that were giving the right meaning for the results.

The final document, number five, was started after the resubmission of documents three and four. Their amendment took me a great deal of time in order to bring them to the required form. Besides, I had already collected a lot of information for the next step (the final document); the “Thesis”. Writing up the final thesis was also a challenge. I had to re-assess and disregard a lot of information that was not entirely relevant to my research question.

This time, I had the experience of previous mistakes and wrong estimations to guide me. During the research and development of document five, my past experience from missdirections and the habit of writing without having done enough analysis of data, was avoided. I have learned that the researcher must present the truth of the findings and the facts as they are and not as they should be. It is also vital not to fall into the novice researcher’s trap of getting so excited about writing and only data which gives a neat picture of things is selected while ignoring anything which tends to make it messy. I have discovered that the truth and the real diamond, the essence of the discovery, are sometimes hidden and it is not an obvious conclusion from the analysis. Inside the mess of the various findings, the real meaning of an inductive or deductive inference was based on my perception in relation to participants’ verbal interview expressions. This is in line with the idealists' perspective, that reality is something like a collection of interconnected beliefs. Yet, beyond this, at times the content was quite vague and the ideas did not always follow logic. Finally, in particular cases, I found that the restatement of answers proved an excellent device for ensuring that I had correctly understood what had been said. Moreover, I used some study support books and guides to develop my research and writing skills so that I could be capable to present the illogical truth in commonsense way. I did wish, however, that I had used them at an earlier stage as it would have saved me a considerable amount of stress.

Another technique I adopted during the interviews of document five was persistence. This was not utilised during the interviews of document three. If the participants did not answer a question, I was in a dilemma; do I continue to press and risk alienation, or give in and leave a potentially fertile field of investigation unturned. During the development of document five, I found a solution by wording the question differently so as to ensure the participants understood what was being asked. Finally, I found that the establishment of empathy and rapport was essential to draw information out of the participants.

Moreover, I discovered that during the interviews of document three, the kind of data recorded on tape and in hand written notes provided an informational base that was extremely fragile. It was fragile because, as time passed, it became increasingly difficult to reconstruct information. This was especially true with respect to the insights that I had when listened to

the respondents, or with respect to important relationships or connections that the respondent expressed. As I remember, after a few days, it was very difficult to fully interpret handwritten notes that were taken, even when they were good notes. Similarly, there were flashes of insights that I had when I was listening to the participants that seemed self-evident at the time, but was something that I forgot when it came to put it all into writing. The problem was that such insights turn out to be very hard to remember after a period. As time passed, they lost a great deal of detail and nuance, however, a great deal of understanding came from the context of the interviews and from a range of cues that were simply not captured on tape. And, more importantly, the moments of inspiration and clarity that I had experienced during the interviews were not likely to be re-created when I was listened to a tape weeks later.

Based on my previous experience with the interviews of document three, I decided to adopt both techniques of tape recording while simultaneously taking notes. At the end, I reviewed the tape and notes, occasionally writing down direct quotes that I deemed especially relevant. The tapes were kept as a record, but are not transcribed word for word. The tapes and my notes were analysed to show the dynamic interrelatedness of the various pieces of information that the respondent presents. Perhaps one of the most critical and, undoubtedly, one of the most painful aspects of a qualitative methodology I adopted was the need to write an interpretive analysis while also assessing the organisational and key decision factors.

The objective was to assemble and interpret the information that was collected the same day. In other words, at the end of the interviews, it was essential to review the notes and the tapes and to write a report that summarised and interpreted the information obtained and finally assess the factors in the matrices. If you have ever done interviews in organisational environment, you know how tiring the process can be. At the end of the day, it was not so realistic to expect someone to write such a report, but I was disciplined to do it with persistence. Consequently, tape recording the interview and taking notes at the same time proved efficient.

I believe that research is a practical activity and should not be governed in any strict way by methodological theory. During the analysis (assessing factors by a quasi-statistical approach and identifying the path selection process), as I began to arrange the interviews, further insights developed that fed into what had gone before and shaped what followed. After checking interpretations, there was space for reflecting again and again on what had emerged. From this, further positions and thoughts were formed. This indicated to me that it was a continuous loop that fed back in on itself.

I feel that the chunky structure of doing separate documents was helpful in order to complete the DBA. This gave me the feeling of developmental progress and any document's positive feedback facilitated the next step of the DBA. To conclude, through producing a lengthy piece of work, the DBA documents have improved my confidence in my ability. I feel it has effectively concluded the academic phase of my life, and am excited and motivated by the prospect of future involvement in further research. I would like to mention that an organisation has a dynamic social structure that forms and maintains itself in order to achieve strategic goals (Buchanan et al 2004). Contemporary organisations are very aware that change is a key factor when maintaining a diversified behaviour to provide effective services. The new research direction is initiated and, even when any impetus or stimulus of influence could come from outside (McDermott 1999), the sense of reaching out, of grasping and comprehending, came from my cognitive reassessment of strategic projects implementation process. When I was writing the DBA documents, I was mindful of Lewin's (1951) comment that "to understand any organization, we do by virtue change it". Thus, any diagnosis that I make would also be an intervention on my part. What a responsibility!

6. The Overall Experience

A reflective journal, often called a learning journal, is a steadily growing document that the learner writes to record the progress of learning. The learning process, based on task-conscious and formalised learning (Rogers 2003), gave new directions in my mind for future research on the topic. The challenge throughout the development of the study was that truth was in relation to theories and beliefs, albeit with the caveat being that it depends on certain things. From this, influencing factors lists and a coherent theoretical model were created. I knew that they represented, to me, a restricted view of reality. Idealists do not believe that there is an ontological distinction between beliefs and what makes beliefs true. The research was based upon the notion that there should be a continuous change and development of project management implementation processes and their behaviours are never fixed. Reality is socially and personally constructed. There is no fixed and unchanging "Truth". The study pointed out things that struck me as significant, however, these might not be the same according to the readers' point of view.

From the idealists' perspective, reality is a collection of beliefs. Consequently, a belief cannot be true because it corresponds to something which is not a belief. Instead, the truth of a belief can only consist in its coherence with other beliefs. A coherence theory of truth, which results from idealism, usually leads to the view that truth comes in degrees. A belief is true to the degree that it coheres with other beliefs. The transcendence objection utilised during data

analysis, charged that coherence of participants' beliefs was unable to account for the fact that some propositions are true which cohere with no set of beliefs. I believe that if there is a world independent of representations of it, as historical evidence suggests, then the aim of representation should be to describe the world, not just to relate to other representations. My argument does not refute the previous theories on project management but shows that it implausibly gives minds too large a place in constituting truth. This is in line with Thagard's (2007) argument that if there is a mind-independent world, then our representations are representations of the world.

Furthermore, it might be worth summing up the factors that have helped me get so far. For me, at least, it was important to choose a subject which mattered and that I believed to be important. I maintained my enthusiasm by selecting a highly interesting and emotive topic. So long as I get there in the end, it is possible that my work might make a contribution to improving the situation for better project management. A good working relationship, and regular communication with my supervisors, was central to DBA study as I established networks with other candidates from other countries as well, who knew how I felt and who were experiencing the same pressures. My feeling is that 'highs' and 'lows' intensified through DBA study. My overall perception about the DBA course is that it was exciting and influential, but was also a difficult renovation of my personality and a lonely journey to the world of knowledge. Finally, I would like to mention that I was not paid by anybody to do this research nor did I gain any funds. I was doing this study in my own free time sacrificing other personal activities and family obligations as a brother, husband and father. I do believe, however, that I was lucky to have the support of my family and my supervisors. Despite the pressures I felt during those three years (when trying to deliver "Mission Impossible" documents, and give the major percent to each of my commitments), juggling the various demands of my life, work, family and the DBA research, my view is that yes, it is worth it after all.

7. References

Barab, S. A., & Hay, K. E. (2001), Doing science at the elbows of experts: Issues related to the science apprenticeship camp. Journal of Research in Science Teaching, 38(1), 70-102.

Borg Simon, (2001), The research journal: a tool for promoting and understanding researcher development, Language Teaching Research.

Boud, D. R. K., & D. Walker (Eds.) (1985), Reflection: Turning experience into learning. London: Kogan Page.

Buchanan & Huczynski, (2004), Organizational Behaviour: an introductory text,Pearson Education Canada; 5 edition (April 7 2003).

Bryman, A (Ed.) (1988), *"Doing Research in Organisations"*, London: Routledge

Ellis, A. K. (2001), Teaching, learning, and assessment together: The reflective classroom. New York, USA: Eye on Education, Inc.

Fusco, D., & Barton, A. C. (2001), Representing student achievements in science. Journal of Research in Science Teaching, 38(3), 337-354.

Gilman Robert, (1984), The Way Of Learning, Context Institute.

Hammersley M., (2000), The politics of Social Research, Sage Publiations.

Janesick, V.J. (1998), Journal writing as a qualitative research technique: history, issues, and reflections. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA, April 13–17, 1998.

Jarvis, P. (1987), Adult learning in the social context. New York: Croom Helm.

Lewin, K. (1951) Field theory in social science; selected theoretical papers. D. Cartwright. New York: Harper & Row.

McDermott (in Murphy 1999:17) puts it: Murphy, P. (ed.) (1999), Learners, Learning and Assessment, London: Paul Chapman.

Ramsden, P. (1992), Learning to Teach in Higher Education, London: Routledge.

Redman, W (1995), *"Portfolios for Development"*, London: Kogan Page

Rogers, C. and Freiberg, H. J. (1993), Freedom to Learn (3rd edn.), New York: Merrill. . See, also, H. Kirschenbaum and V. L. Henderson (eds.) (1990) The Carl Rogers Reader, London: Constable.

Rogers, A. (2003), What is the difference? a new critique of adult learning and teaching, Leicester: NIACE.

Smith, M. K. (1999), 'The social/situational orientation to learning', the encyclopedia of informal education, www.infed.org/biblio/learning-social.htm, Last update: September 03, 2009.

Tennant, M. (1988, 1997) Psychology and Adult Learning, London: Routledge.

Thagard, Paul, (2007), ‘Coherence, Truth and the Development of Scientific Knowledge’, Philosophy of Science..