

**THE INFLUENCE OF PROJECT MANAGEMENT SERVICE PROVISION ON
ROLE-PLAYERS WITHIN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY**

By

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DECLARATION

I, the undersigned, Andre Le Roux Hefer, hereby declare that the attached work is in all respects my own. No part thereof has been copied from another source without proper reference thereto.

I am aware that a mark of nil may be given to this work if this declaration appears to be false.

Signed this _____ day of _____ 20_____ at

Andre Hefer

ABSTRACT

The legitimate existence of the Project Management Profession in the South African construction industry needs to relate to positive project influence on the industry role-players. This study assessed the perceived lack of recognition and acceptance of Project Management as a stand-alone profession relating to:

- Appointments of Project Managers being questioned due to a perceived lack of influence and impact on project success.
- Project Managers not being recognised as an integral part of the industry.
- Project Management not being perceived as having a unique and defined function.

Interviews were held with 23 industry role-players made up of clients, contractors and consultants. The interviews solicited input on the role-players' perception and experience related to the influence of Project Management over the past 10 years, not only on a list of success criteria relative to their own role in the industry, but also their perception of the influence on the other defined role-player groups. Included in the interview questionnaire was also a range of general questions to refine the feedback and further test the hypotheses. The data were interpreted and analysed by comparing the feedback of the respondents as a combination and separately as groups. The results of the study indicate that:

- Project Management could be seen as a legitimate part of the industry;
- The industry role-players perceive Project Management as making an impact and having a growing influence on the industry;
- A specific but broad set of skills are required by Project Managers;
- The Project Management function cannot be fulfilled by other consultants, but there are project related criteria which should be considered before making a final judgment. These criteria relate to project size and complexity; and
- Project Management is currently perceived to be more related to a specific person's skill than to a specific profession.

The study's aim was to influence and inform the views of industry role-players on the appointment of a Project Manager in the construction industry.

Keywords: recognition, acceptance, project management, success criteria

DEDICATION

I dedicate this effort and writings to the ones I love.

My dear wife, Anke, and our unborn little girl (Ane Naomi).

My family and friends.

To the Lord my God – You are my strength when I am weak, You are the treasure that I seek, You are my all in all.

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1. THE PROBLEM AND ITS SETTING

1.1 Introduction

The South African Council for the Project and Construction Management Professions (SACPCMP) was established towards the end of 2000 through the promulgation of the Project and Construction Management Professions Act no. 48 of 2000 (RSA Government, 2000). This introduced and established the first professional body for project managers as a stand-alone discipline in the South African construction industry. In comparison with the other professional service providers and consultants in the construction industry (more specifically Architects, Quantity Surveyors and Engineers), who have had established professional bodies for over thirty years prior to the establishment of the SACPCMP, it is perceived that the Project Management profession, only in existence for 10 years, is still in its infancy (Kruger, 1992) (Association of South African Quantity Surveyors, 2005).

This infancy, in many instances, gives rise to a lack of acceptance and recognition by the main industry role-players. This lack of recognition and acceptance leads to the questioning of the legitimacy of Project Management as a stand-alone discipline in the construction industry. The Oxford on-line Dictionary (Oxford Dictionaries , 2011) provides the following meaning for legitimacy: “able to be defended with logic or justification; valid”. All newly established professions had to answer these legitimacy queries and fight for acceptance before breaking through the barrier of being recognised by government as a profession.

Questions of legitimacy relate to the Project Management profession's influence on: value added in relation to fees, realisation of cost savings, time saving, increased efficiency, tangible benefits, increased quality end product, increased project success rate, reduced project risk, and decrease in project claims/disputes. The Project Management professions' influence will need to be assessed before other role-players in the industry will accept the new profession as a legitimate or even integral part of the industry and project delivery process (Himayumbula & Prinsloo, 2010, p. 29).

It is perceived that professional recognition and registration does not grant a profession immediate acceptance or recognition in the eyes of the other role-players in the construction industry, namely Clients, Consultants or Contractors. This

acceptance will need to be earned. The queries regarding legitimacy of existence are also accentuated in times of economic recession, as is currently being experienced nationally and internationally (Creamer Media, 2011, p. 3).

Weaver (2007 b, p. 2) and Weaver (2007 a, p. 15) indicates that if certain criteria are applied to Project Management, it can be described as an emerging profession and a reason could be that even while there is a defined Body of Knowledge for the discipline, there are quite contradictory views across the world from different professional associations. Weaver (2007 a, p. 15) also notes that if Project Management is not at present a profession; it will certainly emerge as one over time.

Thus, in the case of Project Management in the construction industry, the practice and appointment of a professional Project Manager in the past 10 years, since the inception of the SACPCMP, needs to be defended with logic and justification. The Project Management profession needs to, without any doubt, show that it has a legitimate place in the South African construction industry hierarchy, and even more so for the Project Manager, at the top of the consultant hierarchy as the leader of the project consultant team and as the leading client agent during construction.

Kwak and Anbari (2009, p. 436) reinforce the logic behind the study by indicating that research on Project Management through the viewpoint of allied or cross disciplinary role-players (in this case Clients, Consultants and Contractors), will lead to a situation where Project Management and its influence can be better understood and will enhance the current body of knowledge. This understanding will lead to improved education, training in the field and finally to superior project success or performance (Kwak & Anbari, 2009, p. 436).

1.2 The Statement of the Problem

The research intends to assess the degree of recognition and acceptance of Project Management as a stand-alone discipline.

1.3 The Statement of the Sub-Problems

1.3.1 Sub-problem 1

The appointments of stand-alone Project Managers are being questioned due to the perceived lack of influence and impact on project success.

1.3.2 Sub-problem 2

Stand-alone Project Management professionals are not accepted and recognised by industry role-players as an integral and legitimate part of the construction industry.

1.3.3 Sub-problem 3

Industry role-players do not perceive Project Management as a unique and defined function.

1.4 The Hypotheses

1.4.1 Hypothesis 1

Project Management service provision has over the past ten years positively influenced role-players with regard to their respective and combined project success criteria.

1.4.2 Hypothesis 2

Project Management service provision will have a perceived impact and growing positive influence on the future of the construction industry and its role-players.

1.4.3 Hypothesis 3

The fulfilment of the Project Management function in the construction industry requires a comprehensive and specific set of skills, attributes and professional conduct.

1.5 The Delimitations

The following delimitations will apply to the research:

- The research will be restricted to the views and perceptions of industry role-players situated in Port Elizabeth, Eastern Cape Province.
- The research investigation input required will focus on the views of the role-players in the built environment within the specified area. The views of labour and end-users of constructed infrastructure will not be considered.
- Only project success criteria found as part of the literature review were included in the questionnaires used in the interviews.
- The study also requested for respondents to give their perceptions and views on the past 10 years, due to the fact that the SACPCMP has been in existence for this period of time.

1.6 The Definition of Terms

- Built Environment –
 - “the built environment consists of buildings and all other things that have been constructed by human beings” (Collins English Dictionary, 2012)
 - “built environment” means the physical world that has been intentionally created through science and technology for the benefit of mankind (RSA Government, 2008, p. 2)
- Critical Success Factors (CSF) –
 - “the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department, or organisation” (Rapidbi, 2012)
 - Those inputs to the management system that lead directly or indirectly to the success of the project (Yong & Mustaffa, 2011, p. 3)
- *Consultant* - a person who provides expert advice professionally (Oxford Dictionaries , 2011)

- Contractor - a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job (Oxford Dictionaries , 2011)
- Construction –
 - “The action of building something, typically a large structure; the industry of constructing buildings, roads, etc.” (Oxford Dictionaries , 2011)
 - “The business or work of building dwellings, offices, etc.” (Collins English Dictionary, 2012)
- Client – “A person, company, etc., that seeks the advice of a professional man or woman; a customer” (Collins English Dictionary, 2012)
- Dash-board –
 - “A dash-board is a visual display of the most important information needed to achieve one or more objectives; consolidated and arranged on a single screen so the information can be monitored at a glance” (Few, 2007, p. 1)
 - “A dash-board is a customized, interactive user interface that organizes and presents information from multiple components into a unified display that is easy to read and interpret.” (Spend Radar, 2012)
- Labour – “workers, especially manual workers, considered collectively” (Oxford Dictionaries , 2011)
- Legitimate –
 - “able to be defended with logic or justification; valid” (Oxford Dictionaries , 2011)
 - “based on correct or acceptable principles of reasoning” (Collins English Dictionary, 2012)
- Mean – All the scores are added together and their sum is divided by the total number of scores (Leedy & Ormrod, 2001, p. 270)

- Mode – The most frequently occurring score is identified (Leedy & Ormrod, 2001, p. 270)
- Project Management –
 - The Project Management Institute indicates that Project Management is “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements” (Project Management Institute, 2008, p. 6)
 - According to the Major Projects Association (MPA) seminar summary (2008 April, p. 3), Project Management can be defined as “An organised approach by which a set of coordinated activities are defined, planned and delivered so that a desired outcome is achieved and hence agreed benefits are realised”.
 - “The planning, co-ordination and control of a project from conception to completion (including commissioning) on behalf of a client requiring the identification of the clients objectives in terms of utility, function, quality, time and cost, and the establishment of relationships between resources, integrating, monitoring and controlling the contributors to the project and their output, and evaluating and selecting alternatives in pursuit of the clients satisfaction with the project outcome.” (Walker, 2007, p. 5)
- Professional – “a person engaged or qualified in a profession” (Oxford Dictionaries , 2011)
- Project – The Project Management Institute indicates that a project is “a temporary endeavour undertaken to create a unique product, service, or result” (Project Management Institute, 2008, p. 5)
- Range – The difference between the highest and the lowest scores in the distribution. (Leedy & Ormrod, 2001, p. 270)
- Success criteria –
 - “The measure by which success or failure of a project will be judged” (Yong & Mustafa, 2011, p. 3)

- “Based on the criteria someone can judge if project outcome is successful or not.” (Bakhsheshi & Nejad, 2011, p. 182)
- Successful Project – “a project to be proud of for many years to come” (Major Projects Association, 2011 January, p. 1)
- Standard Deviation – The standard measure of variability. The most accepted measure of dispersion (Leedy & Ormrod, 2001, p. 270)

1.7 Abbreviations

BRIC	Brazil, Russia, India and China
CSF	Critical Success Factor
HSSE	Health Safety Security & Environment
ISO	International Standards Organisation
JBCC	Joint Building Contracts Committee
MPA	Major Projects Association
NMMU	Nelson Mandela Metropolitan University
PM	Project Management
PMBOK	Project Management Body of Knowledge
SA	South Africa
SACPCMP	South African Council for the Project and Construction Management Professions

1.8 Objectives of the research

The objectives of the research culminate into the following:

- Clarify the respective project success criteria for Clients, Consultants and Contractors in a construction project;

- Evaluate the influence which Project Management (PM) has on the project success criteria relative to Clients, Consultants, and Contractors;
- The evaluation of the influence of Project Management service provision over the past 10 years;
- To appraise the future impact and influence of Project Management service provision on the industry role-players;
- Assess the legitimate utilisation of Project Management as a stand-alone discipline in the construction industry through the perspectives of the Clients, Consultants and Contractors;
- Clarify and question general perceptions towards Project Management; and
- To influence and inform the views of industry role-players on the appointment of a Project Manager.

1.9 The Importance of the study

Project Management as a stand-alone profession will be seriously questioned if the study does not identify that Project Management professionals have over the past 10 years since the inception of the SACPCMP:

- Positively influenced the project success criteria of the respective role-players in the construction industry, and
- Provided clear current and future benefits to the needs of the role-players.

The study will also aim to inform clients on the future appointments of Project Managers and guide the views of role-players with regards to the acceptance and recognition of the PM profession.

If the study was not undertaken, the situation could continue wherein the appointments of and on-going role or influence of Project Managers could be questioned.

1.10 Benefits of this study

The outcomes from the research regarding the possible positive impact and benefits of Project Management in the construction industry, should further inform the appointment opportunities of stand-alone Project Managers on construction projects. Furthermore, it should also either propose acceptance and recognition or on the other hand, further question the profession's existence in the eyes of the industry role-players.

1.11 Chapter summary

The study will aim to investigate and clarify the question with regards to the legitimacy of the Project Management profession as part of the Construction Industry. The legitimacy will be tested against the views of the industry role-players with regards to their perceptions of Project Management influence over the past 10 years and assessing the perceived future impact and influence. The research will be undertaken within the delimitations mentioned and through the clear objectives of the study aim to provide benefits to the readers and broader body of knowledge.

The following chapter looks at the reviewed literature which informed and was related to the study topic, sub-problems and hypotheses.

2. THE REVIEW OF THE RELATED LITERATURE

2.1 Background

The literature reviewed includes information obtained from the following sources:

- Online journals and databases
- Books from the NMMU campus libraries
- Industry journals and popular magazines
- Internet

2.2 Literature Review

2.2.1 Introduction

The literature review's aim was to investigate and clarify issues and perspectives currently held in relation to the study's sub-problems and hypotheses. The main themes of the hypotheses and sub-problems were:

- Project Management influence
- Project success and criteria
- Legitimacy of professional existence

The reviewed literature informs the researcher with regards to the following headings, with the identification of related views and topics being discussed and researched in the Project Management field:

- Project Management – history/background
- Project Management – a profession
- Project Management – benefits and influence
- Project Management – future
- Project – success

2.2.1.1 Project Management – history/ background

Burke (2000) and Weaver (2007 a) indicate that Project Management originated in the 1950's. Weaver (2007 a) states that the term "Project Manager" was first used in the 1950's and further indicates that on the "Trans Mountain Oil Pipeline" in Canada,

was the first time that a firm was appointed as a Project Manager. Weaver (2007 a), further states that by the end of the 1950's the appointment of a project manager "to take full and undivided responsibility for achieving the project objectives" was unquestionably gaining ground and seemingly becoming stable in the western world. Weaver (2007 a) concludes that the use of the terms 'project' and 'project management' only became common in the last 50 years and was largely aligned with the growth in establishment of Project Management associations. Even though many large scale projects were undertaken in the early nineteen hundreds, the term Project Management only really came into use in the 1950s.

Steyn, Basson, Carruthers, du Plessis, Prozesky-Kuschke, Kruger, van Eck and Visser (2003, p. 2) indicates the following factors related to the growth and importance of the Project Management field:

- Globalisation;
- Increased speed of product development;
- Increased client demands;
- Knowledge explosion; and
- South African governmental service delivery intentions.

2.2.1.2 Project Management – a profession

In South Africa and internationally, definite questions have arisen with regards to the traditional roles and responsibilities of the built environment consultants, especially with regards to the role of the architect as the traditional project team leader or principal agent (Jones, 2006, pp. 20, 25, 87) (Shaw, 2009, p. 46). Jones (2006, p. 30) goes on to comment that "designers are typically inadequate in performing construction management services". Barnes (2009, p. 4) reiterates the fact when noting that the application of Project Management is not well established when it comes to design professions in the construction sector.

Brown and Botha (2005, p. 6) state that municipalities found it difficult to implement Project Management. Brown and Botha (2005, p. 6) further note that many personnel found themselves in tough career positions due to the fact that the Project Management profession is still in such an experimental stage.

The Major Projects Association (MPA) seminar summary concludes (2008 April, p. 2) that the best Project Managers “need to know a little about a lot” and that they need experience and should be mentored in leadership skills. The MPA seminar (2008 April, p. 2) summary further states that Project Managers “will then be able to take risks which impact on financial performance and the organisation’s reputation”. From the summary it can be noted with interest that as in many other developed countries it was stated that there is a great concern with regards to the lack of experienced Project Managers to manage and lead the large projects/programmes which will be implemented in the United Kingdom in the coming decade.

According to Weaver (2007 a, p. 15), the attributes generally necessary for a discipline to be judged to be a profession are:

- Persons in the field will need formal educational and professional admission requirements;
- Ownership of a relevant set of terms and conditions of practice;
- A specific code of professional ethics;
- A commitment to service standards; and
- A distinct body of knowledge and related skills

Weaver (2007 a, p. 16) notes with regard to the Project Management professions growth and history that:

- Project Management associations and professional bodies started by the spread of discussions and forums on Project Management;
- The establishment of professional associations was prompted by the growth of scheduling as a skill and profession in the early 1960s; and
- The start of modern Project Management was that “schedulers” needed to create forums in which the new discipline could be discussed or developed.

2.2.1.3 Project Management – benefits and influence

Morris (2000, p. 19) indicates that research on the topic of the business benefits of investing in Project Management is urgently needed and to date very little has been done. It is perceived that Morris (2000, p. 19) indicates that 10 years ago queries

were raised with regards to the validity or business benefits of Project Management in first world countries.

In the African and growing economy context of Zambia and Ghana, it is indicated by Shakantu, Zulu and Matipa (2002, p. 5), and Ofori and Hinson (2004, p. 98), that it is critical for construction managers and clients to undertake change in the management of construction projects and to adopt a Project Management methodology similar to those indicated in the Project Management Body of Knowledge (PMBOK), but that local issues also be investigated and researched.

In a recent article by Watermeyer (2010, p. 34), the four presentations which were made during the University of Witwatersrand Construction symposium around the topic "The Project Management Profession: Adding Value" were summarised. The symposium's aims confirmed that the Project Management profession still needs to prove that it is adding value and that in the South African perspective; it is still a growing and learning profession which is far from being mature and settled.

In research (Brown & Botha, 2005, p. 7) on lessons learnt on implementing Project Management in South African municipalities, it is noted that high-level decision makers are typically very knowledgeable in the field of Project Management and that proper Project Management is integral to the implementation of the municipal development plans. It also refers to the fact that formalised Project Management is extremely suitable to solve the numerous challenges which local authorities face (Brown & Botha, 2005, p. 3). Brown and Botha (2005, p. 5) conclude that "there is no empirical proof that the project way of making services available in a local authority is better than the traditional way".

In contradiction to the above, Van der Waldt (2007, p. 251) categorically states that the use of "Project Management techniques and processes will give a higher likelihood that service delivery projects will be completed on time, within budget and to an acceptable level of quality". Van der Waldt (2007, p. 240) further proposes that the South African government needs to develop overall Project Management skills and applications to ensure improved delivery of services and enhancing the management capability. Van der Waldt (2007, p. 258) also states that redefining and rearranging the old-fashioned way of service provision in the public sector is required and goes on to ask the question as to what extent Project Management could be part

of the solution of service delivery. Van der Waldt (2007, p. 251) also indicates that Project Management should be the central starting point for policy makers and the Project Management way of thought should guide the entire government policy to achieve the desired outcomes.

Steyn et al. (2003, p. 14) indicates the following benefits of Project Management:

- Customer satisfaction;
- Potential growth in the market and future business with current clients;
- Personal growth opportunities for successful Project Managers;
- Constant professional demand due to general skills of professional operatives;
and
- All involved parties “win” if a project is successful.

Boninelli (2005, p. 200) states that many projects fail due to poor change management and leadership skills of Project Managers and the lacking knowledge of people problems and solutions they could encounter. The outcome of the failure is that countless resources are wasted (Boninelli, 2005, p. 200).

Du Plessis, Smith and Vermeulen (2009, p. 97) note that globalisation is confronting organisations with many challenges and it is in fact these challenges which are prompting these organisations to adopt Project Management which in turn gives them the ability to implement their chosen strategy and help to achieve their goals.

In addition to sound technical expertise of Project Management practitioners, the following “habits of great project leaders” will enable role-players to identify the best Project Managers (Major Projects Association, 2008 April, p. 2):

- Setting Health, Safety, Security and Environmental expectations;
- Understanding the overall project scope;
- Forming a procurement strategy;
- Understanding and help set up the clients organisation scope of issues and objectives;
- Induce and facilitate performance monitoring;
- Developing others during projects;

- Creating the vision in the project team;
- Planning;
- Intervention when required; and
- Problem solving.

Van Jaarsveld and Hefer (2011, p. 26) noted that the appointment of Program and Project Managers has the following benefits for clients:

- Responsibility is given to the Program/Project Managers to ensure proper management and project delivery;
- Uniformity in project administration and documentation;
- Financial control;
- Reassurance of prospective funding agents; and
- Enhanced effectiveness and project implementation.

2.2.1.4 Project – success

The MPA seminar summary (2009 June, p. 1) states that project success is not only dependent on Project Management technology, techniques and processes but is actually greatly influenced by leadership, culture and instilling good behaviour by Project Management practitioners.

Furthermore, the MPA summary (2006 December, p. 2) also indicates that successful project managers firstly possess leadership then conceptual/organisational skills and thirdly domain or technical knowledge. The MPA summary (2006 December, p. 2) also reflects that the complexity of projects has also necessitated the Project Manager to be the leader of change.

In an article (Da Vinci Institute of Technology Management and Technology, 2009, p. 3), it is stated that one of a company's key drivers to gain a competitive advantage is by means of Project Management and that business success depends on creating a Project Management culture. A survey included in the article (Da Vinci Institute of Technology Management and Technology, 2009, p. 3) notes that only 20% of projects are successfully completed, and it also indicates that if used, Project Management can save costs.

At a convention held by the MPA (2008 February, p. 8) it was noted that the critical project success factors for a specific project were:

- The company's staff "were fully conversant, competent and motivated";
- The deadline or milestone dates were met;
- The first day of operations was seamless;
- The entire project was completed within the approved budget;
- The on-going service is of a high standard;
- Support service is "efficient, safe, and reliable"; and
- Customer satisfaction and profit were increased

An article by Deacon (2011, p. 8) states that classifying a project as being successful or not is no menial task and has many dimensions and viewpoints. Deacon (2011) uses the example of red and green projects. Red projects meaning failed or unsuccessful and green projects being successful. Deacon (2011) states that "there is a grey area between these green or red examples". Deacon (2011, p. 8) further notes that:

- In judging project success, the client's views are usually taken to judge overall project success, but in contrast, he proposes that:
 - "An endeavour undertaken by a client also comprises of a project which produces an outcome";
 - Such an "endeavour's success should measure the performance of the Project Management separately from the outcome";
 - The success of an endeavour "should be measured against a set of customised and weighted success criteria"; and
 - The "Project Management success and outcome success should be expressed as a percentage, rather than on a yes or no basis".

In an endeavour to define project success (van Niekerk & Steyn, 2011, p. 124) it is noted that "there is no clear cut definition of 'project success' that applies to all projects in all environments". The study (van Niekerk & Steyn, 2011, p. 124) further states that before an approach can be developed to manage a specific project, the various success criteria by which a project will be judged will need to be defined. Van

Niekerk & Steyn (2011, p. 126) further quotes that success means different things to different people. It is also indicated (van Niekerk & Steyn, 2011, p. 127) that for many years most practitioners linked project success only to the “iron triangle” of quality, budget and time but state that other factors could be added to refine the model into four dimensions, namely:

- Project efficiency:
 - Meeting schedule/programme goals,
 - Meeting budget/cost goals.
- Impact on the customer:
 - Meeting functional performance,
 - Meeting technical specifications,
 - Fulfilling customer/user needs,
 - Solving a customer’s problem,
 - The customer is using the product,
 - Customer satisfaction.
- Business success:
 - Commercial success,
 - Creating large market share.
- Preparing for the future:
 - Creating a new market,
 - Creating a new product line,
 - Developing new technology.

The major project seminar report (2011 January, p. 2) also states that project success is in line with the original time, cost and quality dimensions, but a project’s success can also realise in a manner unforeseen and could change in time as perceived by individuals.

2.2.1.5 Project Management – future

Steyn et al (2003, p. 2) further note that Project Management is believed to be the fastest growing form of management in the world.

The MPA summary (2009 February, p. 2) states that:

- Future key drivers for Project Management of major projects will include the following: environmental change, changing expectations and the competitive demand for various resources.
- With regards to global developments influencing Project Management, it is stated that emerging economies' wealth and output has risen significantly and that these statistics are led by the Brazil, Russia, India and China (BRIC) countries of which South Africa has recently become a member. The BRIC countries accounted for close to 40% of the world growth since the turn of the century and in the future it is foreseen that the growth in the emerging markets will keep being stronger than the developed markets or economies.
- The future mega trends are:
 - That a new globally recognised system of regulation of the world and local business markets needs to be developed;
 - That innovations in technology will need to be managed and embraced;
 - With regards to the short term future, it is stated that less major projects will be planned and more projects will be delayed; and
 - The biggest changes in the future of Project Management and construction in general will be driven by cost and carbon waste reduction.

A seminar report (Major Projects Association, 2006 October, p. 2) indicates some changes in the Project Management field which will have to be taken into account by practitioners. These changes for the 21st century include:

- The mind shift from being product orientated to being more focused on value creation and benefits for shareholder groups;
- Changes in Project Management focus will increase the complexity of the project environment and requires a new set of skills to be successful; and
- Training will shift from tools and techniques to development of the individual Project Manager's capabilities which will enable the practitioners to operate in the 21st century environment.

The same report (Major Projects Association, 2006 October, p. 3) states that a 21st century practitioner will need to adapt and have the following capabilities:

- To be informed by principles and frameworks;

- To see knowledge as temporary and dynamic;
- To be pragmatic in their approach to practice;
- To embrace uncertainty;
- To give professional judgement when it counts;
- Be able to emphasise reflection and deliberation; and
- Be able to develop professionally.

2.2.1.6 Literature Review - Summary

The views stated in the literature review can be summarised as follows:

- Project Management has become a common practice and profession worldwide over the past 50 years.
- The profession is still experiencing some challenges relating to its legitimate role in the construction industry.
- Project Management as a profession is becoming more defined, but it still requires clarity within the professional fraternity with regards to the bodies of knowledge and professional skills.
- The benefits of Project Management are experienced by some industry role-players, but are not always apparent.
- Project success and failure is ill-defined and has many perspectives.
- The future of Project Management is reliant on the profession being adaptable and embracing global trends.

2.2.1.7 Chapter Summary

The chapter included the review of literature related to the study. The literature review was concluded under headings which defines certain aspects related to the study's sub-problems and hypotheses. This should inform the reader of topics and trends in the field of study and guide the process of interpretation of the study's findings.

The next chapter will guide the reader on the research methodology which was used in the study.

3. THE RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research methodology followed for the study will be discussed. The types of data required will be noted, followed by clarification of the research method. The population and sample size will be defined and finally the questionnaire design and usage during interviews will be clarified.

3.2 The Data

Two types of data were used for the compilation of information for the study, namely primary and secondary data. The data has been analysed and interpreted in Chapter 4 in order to test the hypotheses as previously identified in Chapter 1.

3.2.1 Primary Data

The primary data comprised of interviews conducted with, and questionnaires completed by the various clients, consultants and contractors as identified within the target role-player groups.

3.2.2 Secondary Data

The secondary data were gathered from sources such as books, journals, magazines, newspapers and the internet. The secondary data has mainly been used for the compilation of the questionnaire which was used in the interviews.

3.3 Methodology

The research was undertaken in two main stages to ensure that the primary data collected would be ably applied in the testing of the hypotheses.

The first stage encompassed the extraction of data from research articles and other written sources relevant to the critical project success criteria for each of the role-players, so identified as part of the study. A list was finally compiled of the critical success criteria relating to each of the role-players. Written resources in the literature review were also used to gather data and trends on the future impact of Project Managers to ensure that sufficient questions relating to this issue were drafted and included as part of the interview questionnaires.

Secondly, questionnaires were developed for use as part of the structured interviews (Leedy & Ormrod, 2001, p. 200) in which both qualitative and quantitative data were sourced. The questionnaires were set up to yield mainly quantitative data, but open-ended questions were included in order to provide qualitative data from comments made by the respondents. The input for the questionnaires was obtained from and guided by the information gathered in the first stage as explained above.

The questionnaires were tested twice through a process of pilot questionnaires to ensure that the respondents understood what was required and to ensure that the feedback received aligned with what was required to test the hypotheses. The questionnaires were circulated and the purpose explained to the pilot test group. After the first feedback was received from the group, the revised questionnaires were again distributed for refinement. Through this process and constant feedback from the study supervisor, the full questionnaire was finalised for use in the interviews.

Twenty three persons who were requested to participate in the interviews were contacted via telephone and email. Requests for the interview were accompanied by a letter indicating the following (Annexure A):

- The qualification towards which the author is studying and its requirement for completion of a research treatise.
- What the research revolves around;
- A request to take part in the research by being interviewed through a process of being questioned using a specifically developed questionnaire;
- The benefits which the interviewee would add to the Project Management body of knowledge by being interviewed;
- The length and time it would take to undertake the interview; and
- Assurance of anonymity of the interviewee's.

3.4 Population sample

The population for this study consisted of experienced persons involved in the built environment as identified from the following role-player groups:

- Clients,
- Contractors, and
- Consultants

These three groups were clearly defined in different strata and were chosen as they are seen to be the three major role-players during any built environment project cycle and would be intensely involved with an appointed Project Manager. They would thus be able to provide sufficient input into the sub problems stated earlier. In this case, the sampling was defined by (Leedy & Ormrod, 2001, p. 215) as Proportional Stratified Sampling, where the sample for each strata would be in proportion to the members in a generic built environment or construction project team. In this instance a generic team consisted of:

- One client or representative;
- One Contractor; and
- Six consultants consisting of an Architect, Quantity Surveyor and four Engineers (Mechanical, Electrical, Civil and Structural).

3.5 Sample size

The ideal sample size was set out in relation to the 1:1:6 ratio derived from the Proportional Stratified Sampling (Leedy & Ormrod, 2001, p. 215) . It was aimed to involve as many role-players as possible until saturation point in the interview data was reached and no new or alternative trends could be identified. During the interview process it was found that the group information reached saturation point after twenty three interviews which included four clients, four contractors and fifteen consultants.

3.6 Questionnaire design

As previously noted, the questionnaires were tested twice in the form of pilot questionnaires which were circulated to a group of five colleagues in the field of construction. The first round of circulation of the questionnaires solicited worthy feedback and the questionnaires were changed accordingly. The questionnaires were then again circulated to ensure that the information required will be in line with what is required to test the hypotheses. The second round of testing resulted in some minor changes being made to the questionnaires, before it was finally approved for use in the study.

The pilot questionnaires yielded enough feedback to set up and undertake the interviews with the final questionnaires so drafted, guiding the process. The questionnaires were set up and adapted to ensure that enough data and balanced information would be obtained to relate to the sub-problems and to be able to properly test the relevant hypotheses.

Specific questionnaires were set up for each of the different role-player groups which formed part of the study. Figure 1 below graphically illustrates the input from each role-player group which collectively gave the combined overall feedback.

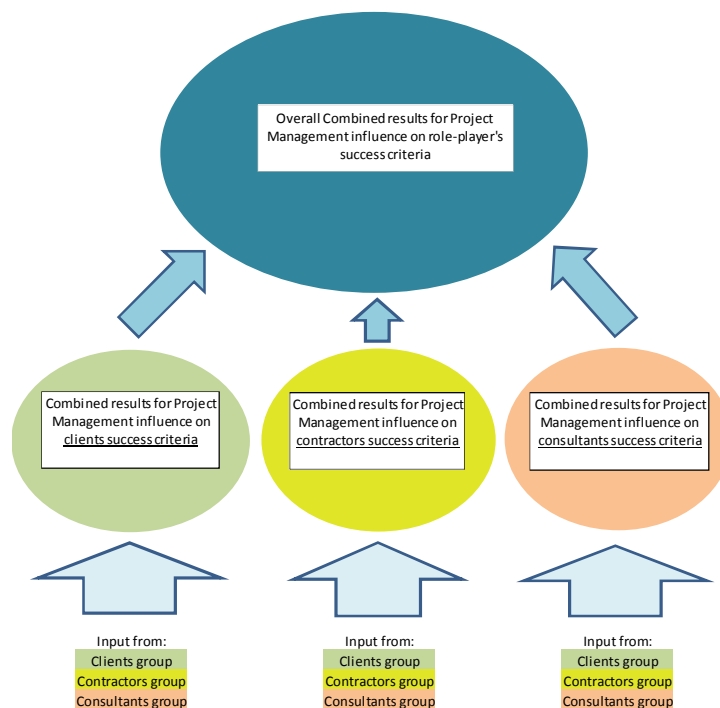


Figure 1 - Combined results of PM influence

Each questionnaire used in the interviews, consisted of two sections.

The first section of the questionnaire requested general demographic information from the persons interviewed.

The second section of the questionnaire dealt with the following:

- Each role-player group was requested to identify the impact or influence of Project Management on their own respective success criteria.
- Each role-player group then completed a list of general questions with regard to general perceptions on Project Management.
- Finally the respondents also identified through their perception and experience, the impact which Project Management had on the other role-player group's success factors. The intention was to solicit feedback from each of the role-players, not only on their own set of success criteria, but also on those of the other role-player groups to ensure that the views expressed were balanced.
- The questionnaires consisted of both structured rating scale (Leedy & Ormrod, 2001, p. 197) questions and open ended type questions, rendering both quantitative and qualitative data.

Questionnaires used in the interviews are attached as Annexure B.

3.7 Chapter Summary

The chapter noted the types of data which will be sourced and the research methodology. The population sample and size was discussed and finally the logic behind the questionnaire design was stated.

The next chapter relates to the results from the interviews, the analysis of the results and the interpretation thereof.

4. RESULTS, ANALYSIS AND INTERPRETATION

4.1 Specific treatment of sub-problem data

4.1.1 Sub-problem 1

Sub-problem one states that: The appointments of stand-alone Project Managers are being questioned due to the perceived lack of influence and impact on project success.

The data needed: Predominantly primary data were used to provide information for this sub-problem, in the form of questionnaires which were filled in as part of the formal interviews. Each role-player rated the influence of Project Management on their applicable critical success factors. They were then also asked to rate the perceived/experienced influence on the other two role-player groups' set of critical success criteria.

Where the data were located: The data were sourced through the interviews conducted with the persons so identified within each of the three role-player groups.

How the data were secured: The data were secured by engaging the persons so identified as role-players and getting their input via the questionnaires and the personal interviews.

How the data were analysed and interpreted: The data were interpreted by analysing and comparing the feedback from the respondents as a combination and separately as groups. An example of this type of comparison would be as follows: All role-players would have given feedback in relation to the client's set of success criteria. Subsequently the combination of the feedback from the client, contractor and consultant would be analysed and interpreted. Thereafter, each group (for example the contractor group) with regards to their feedback on the client's success criteria, would be analysed and interpreted individually to inspect any discrepancy with the other groups (for example the client and consultant groups) or the combined feedback.

The data was statistically interpreted by using acceptable statistical logic. Tables or charts were used to indicate the outcomes of the quantitative data. This will become

more apparent in the later section where the actual discussion of each question takes place.

4.1.2 Sub-problem 2 and 3

Sub-problem two states that: Stand-alone Project Management professionals are not accepted and recognised by industry role-players as an integral and legitimate part of the construction industry.

Sub-problem three states: Industry role-players do not perceive Project Management as a unique and defined function.

The data needed: Once again primary data was used to provide information for these sub-problems, in the form of questionnaires which were filled in as part of the personal interviews conducted. Rating-scale type and open ended questions were included to extract both quantitative and qualitative data.

Where the data were located: The data were obtained through the interviews conducted.

How the data were secured: The data were acquired via the questionnaire interviews.

How the data were analysed and interpreted: The data were interpreted by analysing the feedback from the respondents. The feedback given in the Rating-scale type questions was again statistically interpreted by using acceptable statistical logic and tables or charts were used to indicate the outcomes of the quantitative data. The qualitative data gained from the open ended questions were noted in the analysis and summarised for ease of interpretation.

4.2 Results - Introduction

In this section the results will be presented in the following manner:

Firstly, the interview response rate and feedback will be discussed.

Secondly, the results from the questionnaires which were used as part of the interview process will be presented in the following sections under the headings:

Section 1 - Demographic Profile results

The results for the Demographic data have been shown in tables and the relevant questions asked during the interviews were expanded for clarification for the reader. The Demographic profile data are mainly aimed at indicating the experience and background of the respondents.

Section 2 - Critical Success criteria results

The Critical Success criteria related results have been shown in tables, and some graphic illustrations were given to facilitate understanding of the data captured. The results from this section were exclusively aimed at the hypotheses related to sub-problem 2.

Section 3 - General Questions results

The general qualitative question results were also presented in tables, but where necessary, the actual feedback from respondents was noted. The data obtained from the general questions would be used to test the hypotheses in connection with sub-problem 2 and 3.

4.2.1 Interview response

Twenty three people requested for the interviews were contacted via telephone and email. All of the people requested to take part in the interviews agreed to participate in the interviews. This indicates a 100% response rate. The interviews were held on a set date and time that suited the interviewee's.

The means of contact with the potential interviewee's (telephone and email) was found to be sufficient to create an interest in the research and obtain a positive response on the request for an interview. The high and positive response rate seems in contradiction to the process followed by many researchers who send out only questionnaires via post, fax and email. Shaw (2009, p. 39) notes the following

reasons for low response rates when using the method of sending out questionnaires:

- Utilising Incorrect addresses;
- Losing questionnaires in the post;
- Recipients time restraints;
- Recipients interest in the topic, and
- The professional not having enough experience in order to give valuable feedback.

The above was found not to be true when personally contacting respondents and requesting interviews with specific respondents.

4.2.2 Section 1 - Demographic Profile results

4.2.2.1 Introduction

The demographic profile of the respondents was set up to show the following:

- The relevant experience of the respondents
- The applicable background in relation to the research

The demographic feedback will in each case show the actual question asked in the questionnaire and the results.

4.2.2.2 Question 1 - The period an organisation has been involved in the construction industry

Question 1: How many years has your organisation been involved in the construction industry?

Results:

1	0	Less than 5 years
2	3	5-10 Years
3	5	10-20 Years
4	15	More than 20 years
	23	Response total

4.2.2.3 Question 2 – Respondents' gender

Question 2: Indicate whether male or female.

Results:

1	23	Male
2	0	Female
	23	Response total

4.2.2.4 Question 3 – Respondents' age

Question 3: Indicate which category your age falls into:

Results:

1	0	Younger than 25 years
2	0	25-30 Years
3	4	31-40 Years
4	11	41-50 Years
5	8	Older than 50 years
	23	Response total

4.2.2.5 Question 4 – Respondents' period of time/experience involved in the construction industry

Question 4: Provide an indication of how many years you have been involved in the construction industry?

Results:

1	0	Less than 5 years
2	3	5-10 Years
3	5	10-20 Years
4	15	More than 20 years
	23	Response total

4.2.2.6 Question 5 – Respondents' highest formal qualification

Question 5: Indicate your highest formal qualification.

Results:

1	0	Matric/Grade 12 Certificate
2	5	Diploma
3	1	Post-Graduate Diploma
4	8	Bachelor's Degree
5	3	B-Tech Degree
6	4	Honours Degree
7	2	Master's Degree
8	0	Doctorate Degree
9	0	Other (Please specify):
	23	Response total

4.2.2.7 Question 6 - Status in the organisation

Question 6: What is your status/position within your organisation?

Results:

1	0	Chief Executive Officer
2	1	Managing Director
3	10	Director/Senior Executive
4	3	Manager
5	2	Associate
6	7	Senior Staff
7	0	Supervisor
8	0	Trainee
9	0	Other (Please specify):
	23	Response total

4.2.2.8 Question 7 - Size of projects involved with

Question 7: Indicate the size of the project(s) which you have been involved with where there was a Project Manager appointed (multi selection possible).

Results:

Table 1 - Size of projects results

	Project Category	No. of respondents
1	Less than R 5 million	1
2	R 5m - R10 million	2
3	R 10m - R 50 million	12
4	R 50m - R 150 million	7
5	More than R 150 million	12

4.2.2.9 Question 8 - Geographical areas in which respondents have worked

Question 8: In which geographical area(s) have you been involved with construction projects (multi selection possible)?

Results:

Table 2 - Geographical areas results

	Geographical area	No. of respondents
1	Eastern Cape	23
2	Western Cape	8
3	Gauteng	9
4	Orange Free State	1
5	Kwa-Zulu Natal	3
6	Northern Cape	3
7	Mpumalanga	2
8	Limpopo	1
9	North West Province	2
10	International	7

4.2.3 Section 2 - Critical Success criteria results

4.2.3.1 Introduction

As noted during the explanation of the questionnaire design:

- Each role-player was requested to identify the impact or influence of Project Management on their own respective success criteria.
- The respondents also identified through their perception and experience, the impact which Project Management had on the other role-players' success criteria.

The intention was thus to solicit feedback from each of the role-players, not only on their own set of success criteria, but also on those of the other role-players to ensure that the views expressed were balanced. As indicated in Figure 2 below, the combined results would be made up of not only the combination of the feedback of each of the role-players with regards to their own project success criteria, but also the perception and views that the influence of Project Management had on the other role-players' success criteria.



Figure 2 - Combined results of PM influence

Finally, the respondents were asked to give their feedback with regards to their agreement with their respective lists of success criteria. This included further questions relating to the fact that if the respondent did not agree, they had the option of indicating which criteria they wanted to exclude. The respondents were also requested to give an indication of the criteria they would want to add to the list. These questions were included in the interview questionnaire to test the validity and comprehensiveness of the success criteria list for each of the respondent groups.

4.2.3.2 Question 9 - Combined Critical Success factor results



Figure 3 - Combined results

As a section of Figure 2, Figure 3 above symbolises the Combined results of the study. Table 3 below, presents the results of all the feedback in relation to the six possible replies which the respondents could have given on the questions related to the influence of Project Management on the critical success criteria of all the role-players combined.

Table 3 – Overall Combined results

Client/Contractor/Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
Total of client critical success criteria	48	222	45	5	2	23
Total of contractor critical success criteria	35	204	87	5	0	14
Total of consultant critical success criteria	43	218	91	14	0	2
Total of all critical success criteria	126	644	223	24	2	39

(4.2.3.3 Client Critical Success criteria results - continues on page 51)

4.2.3.3 Client Critical Success criteria results

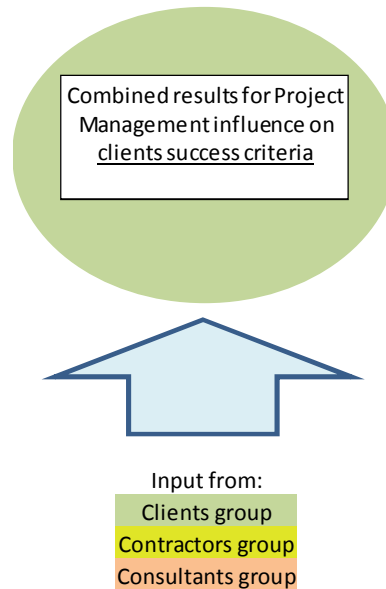


Figure 4 - Client success criteria results

The question below was included in the questionnaire which related to the clients' set of critical success criteria.

Question: Through your past experience and perceptions, please indicate the influence an appointed Project Manager had on the outcomes of the following project success criteria which related to the role of a Client in the Construction Industry (over a period of the past 10 years).

The results relating to the question are indicated in the following tables (Tables 4-7):

Table 4 - Client Criteria: Combined results

	Client - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Clients Time/Schedule (Project completed within the given timeframes)	4	16	1	1	0	1
2	Clients Budget (project completed within the clients approved budget)	3	16	3	0	0	1
3	Quality (project completed to the clients required quality and standards)	1	17	5	0	0	0
4	Satisfied Stakeholders/Client (Satisfaction with end product)	1	20	1	0	0	1
5	Met Client's strategic organisational objectives	2	16	4	1	0	0
6	Clients Profit (Realisation of clients profit potential)	3	14	3	0	0	3
7	All Team Members Satisfied (Satisfaction of all team members involved)	2	17	0	2	0	2
8	Safety requirements (Safety of work undertaken in general)	4	13	5	0	1	0
9	Functional Requirements (Functional requirements of the end product met)	4	10	7	0	0	2
10	Clients Market Share (Potential of increase of clients market share)	2	8	7	0	1	5
11	Clients Reputation (Reputation of the client)	8	9	3	0	0	3
12	Benefits to the clients project personnel (Benefits to those involved)	0	19	2	0	0	2
13	Value for Money (Value achieved in relation to funds used)	3	17	2	0	0	1
14	Absence of legal Claims	7	13	2	0	0	1
15	Successful commissioning (Commissioning of the constructed works)	4	17	0	1	0	1
	Total	48	222	45	5	2	23

Table 5 - Client Criteria: Client results

	Client - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Clients Time/Schedule (Project completed within the given timeframes)	0	2	1	1	0	0
2	Clients Budget (project completed within the clients approved budget)	0	4	0	0	0	0
3	Quality (project completed to the clients required quality and standards)	1	2	1	0	0	0
4	Satisfied Stakeholders/Client (Satisfaction with end product)	0	4	0	0	0	0
5	Met Client's strategic organisational objectives	0	1	2	1	0	0
6	Clients Profit (Realisation of clients profit potential)	0	2	0	0	0	2
7	All Team Members Satisfied (Satisfaction of all team members involved)	0	4	0	0	0	0
8	Safety requirements (Safety of work undertaken in general)	1	2	0	0	1	0
9	Functional Requirements (Functional requirements of the end product met)	2	1	1	0	0	0
10	Clients Market Share (Potential of increase of clients market share)	0	1	0	0	1	2
11	Clients Reputation (Reputation of the client)	2	1	0	0	0	1
12	Benefits to the clients project personnel (Benefits to those involved)	0	4	0	0	0	0
13	Value for Money (Value achieved in relation to funds used)	0	3	1	0	0	0
14	Absence of legal Claims	3	1	0	0	0	0
15	Successful commissioning (Commissioning of the constructed works)	1	3	0	0	0	0
	Total	10	35	6	2	2	5

Table 6 - Client Criteria: Contractor results

	Client - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Clients Time/Schedule (Project completed within the given timeframes)	1	3	0	0	0	0
2	Clients Budget (project completed within the clients approved budget)	1	3	0	0	0	0
3	Quality (project completed to the clients required quality and standards)	0	4	0	0	0	0
4	Satisfied Stakeholders/Client (Satisfaction with end product)	0	4	0	0	0	0
5	Met Client's strategic organisational objectives	0	4	0	0	0	0
6	Clients Profit (Realisation of clients profit potential)	0	4	0	0	0	0
7	All Team Members Satisfied (Satisfaction of all team members involved)	1	3	0	0	0	0
8	Safety requirements (Safety of work undertaken in general)	1	3	0	0	0	0
9	Functional Requirements (Functional requirements of the end product met)	0	3	1	0	0	0
10	Clients Market Share (Potential of increase of clients market share)	0	3	1	0	0	0
11	Clients Reputation (Reputation of the client)	1	2	1	0	0	0
12	Benefits to the clients project personnel (Benefits to those involved)	0	4	0	0	0	0
13	Value for Money (Value achieved in relation to funds used)	0	4	0	0	0	0
14	Absence of legal Claims	0	4	0	0	0	0
15	Successful commissioning (Commissioning of the constructed works)	1	3	0	0	0	0
	Total	6	51	3	0	0	0

Table 7 - Client Criteria: Consultant results

	Client - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Clients Time/Schedule (Project completed within the given timeframes)	3	11	0	0	0	1
2	Clients Budget (project completed within the clients approved budget)	2	9	3	0	0	1
3	Quality (project completed to the clients required quality and standards)	0	11	4	0	0	0
4	Satisfied Stakeholders/Client (Satisfaction with end product)	1	12	1	0	0	1
5	Met Client's strategic organisational objectives	2	11	2	0	0	0
6	Clients Profit (Realisation of clients profit potential)	3	8	3	0	0	1
7	All Team Members Satisfied (Satisfaction of all team members involved)	1	10	0	2	0	2
8	Safety requirements (Safety of work undertaken in general)	2	8	5	0	0	0
9	Functional Requirements (Functional requirements of the end product met)	2	6	5	0	0	2
10	Clients Market Share (Potential of increase of clients market share)	2	4	6	0	0	3
11	Clients Reputation (Reputation of the client)	5	6	2	0	0	2
12	Benefits to the clients project personnel (Benefits to those involved)	0	11	2	0	0	2
13	Value for Money (Value achieved in relation to funds used)	3	10	1	0	0	1
14	Absence of legal Claims	4	8	2	0	0	1
15	Successful commissioning (Commissioning of the constructed works)	2	11	0	1	0	1
	Total	32	136	36	3	0	18

4.2.3.4 Contractor Critical Success criteria results

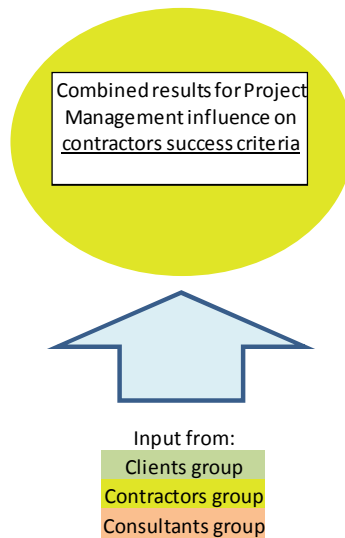


Figure 5 - Contractor success criteria results

The question below was in the questionnaire which related to the contractors set of critical success criteria.

Question: Through your past experience and perceptions, please indicate the influence an appointed Project Manager had on the outcomes of the following project success criteria which related to the role of a Contractor in the Construction Industry (over a period of the past 10 years).

The results relating to the question are indicated in the following tables (Tables 8-11):

Table 8 - Contractor Criteria: Combined results

	Contractor - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Meeting Clients Strategic organisational objectives	4	14	3	1	0	1
2	Contractors Profit (Realisation of contractors profit potential)	0	12	8	1	0	2
3	All Team Members Satisfied (Satisfaction of all team members involved)	0	19	3	0	0	1
4	Repeat Work (Re-appointment of contractor due to past performance)	4	15	3	0	0	1
5	Contractors Safety (Safety of work undertaken in general)	4	10	7	1	0	1
6	Contractors Market Share (Potential of increase of contractors market share)	2	10	9	0	0	2
7	Quality (project completed to the required quality)	2	15	5	0	0	1
8	Satisfy Stakeholders/Client (Satisfaction with end product)	6	14	2	0	0	1
9	Contractors Reputation (Reputation of the contractor)	1	16	5	0	0	1
10	Skill Training (Enhanced skills of contractors personnel involved)	0	8	14	1	0	0
11	Benefits to contractors project personnel (Benefits to those involved)	0	14	9	0	0	0
12	Absence of legal Claims	2	17	3	0	0	1
13	Successful commissioning (Commissioning of the constructed works)	5	16	2	0	0	0
14	Contractors Time/Schedule (Project completed within the given timeframes)	5	13	4	0	0	1
15	Contractors Budget (project completed within the contractors budget)	0	11	10	1	0	1
	Total	35	204	87	5	0	14

Table 9 - Contractor Criteria: Client results

	Contractor - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Meeting Clients Strategic organisational objectives	0	2	1	1	0	0
2	Contractors Profit (Realisation of contractors profit potential)	0	2	2	0	0	0
3	All Team Members Satisfied (Satisfaction of all team members involved)	0	4	0	0	0	0
4	Repeat Work (Re-appointment of contractor due to past performance)	2	1	1	0	0	0
5	Contractors Safety (Safety of work undertaken in general)	1	1	1	1	0	0
6	Contractors Market Share (Potential of increase of contractors market share)	1	1	1	0	0	1
7	Quality (project completed to the required quality)	1	3	0	0	0	0
8	Satisfy Stakeholders/Client (Satisfaction with end product)	1	3	0	0	0	0
9	Contractors Reputation (Reputation of the contractor)	0	4	0	0	0	0
10	Skill Training (Enhanced skills of contractors personnel involved)	0	1	2	1	0	0
11	Benefits to contractors project personnel (Benefits to those involved)	0	3	1	0	0	0
12	Absence of legal Claims	0	4	0	0	0	0
13	Successful commissioning (Commissioning of the constructed works)	1	3	0	0	0	0
14	Contractors Time/Schedule (Project completed within the given timeframes)	2	1	1	0	0	0
15	Contractors Budget (project completed within the contractors budget)	0	3	1	0	0	0
	Total	9	36	11	3	0	1

Table 10 - Contractor Criteria: Contractor results

	Contractor - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Meeting Clients Strategic organisational objectives	1	3	0	0	0	0
2	Contractors Profit (Realisation of contractors profit potential)	0	3	1	0	0	0
3	All Team Members Satisfied (Satisfaction of all team members involved)	0	3	1	0	0	0
4	Repeat Work (Re-appointment of contractor due to past performance)	1	3	0	0	0	0
5	Contractors Safety (Safety of work undertaken in general)	1	2	1	0	0	0
6	Contractors Market Share (Potential of increase of contractors market share)	0	3	1	0	0	0
7	Quality (project completed to the required quality)	1	2	1	0	0	0
8	Satisfy Stakeholders/Client (Satisfaction with end product)	2	2	0	0	0	0
9	Contractors Reputation (Reputation of the contractor)	0	4	0	0	0	0
10	Skill Training (Enhanced skills of contractors personnel involved)	0	1	3	0	0	0
11	Benefits to contractors project personnel (Benefits to those involved)	0	4	0	0	0	0
12	Absence of legal Claims	0	3	1	0	0	0
13	Successful commissioning (Commissioning of the constructed works)	2	2	0	0	0	0
14	Contractors Time/Schedule (Project completed within the given timeframes)	1	3	0	0	0	0
15	Contractors Budget (project completed within the contractors budget)	0	2	2	0	0	0
	Total	9	40	11	0	0	0

Table 11 - Contractor Criteria: Consultant results

	Contractor - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Meeting Clients Strategic organisational objectives	3	9	2	0	0	1
2	Contractors Profit (Realisation of contractors profit potential)	0	7	5	1	0	2
3	All Team Members Satisfied (Satisfaction of all team members involved)	0	12	2	0	0	1
4	Repeat Work (Re-appointment of contractor due to past performance)	1	11	2	0	0	1
5	Contractors Safety (Safety of work undertaken in general)	2	7	5	0	0	1
6	Contractors Market Share (Potential of increase of contractors market share)	1	6	7	0	0	1
7	Quality (project completed to the required quality)	0	10	4	0	0	1
8	Satisfy Stakeholders/Client (Satisfaction with end product)	3	9	2	0	0	1
9	Contractors Reputation (Reputation of the contractor)	1	8	5	0	0	1
10	Skill Training (Enhanced skills of contractors personnel involved)	0	6	9	0	0	0
11	Benefits to contractors project personnel (Benefits to those involved)	0	7	8	0	0	0
12	Absence of legal Claims	2	10	2	0	0	1
13	Successful commissioning (Commissioning of the constructed works)	2	11	2	0	0	0
14	Contractors Time/Schedule (Project completed within the given timeframes)	2	9	3	0	0	1
15	Contractors Budget (project completed within the contractors budget)	0	6	7	1	0	1
	Total	17	128	65	2	0	13

4.2.3.5 Consultant Critical Success criteria results

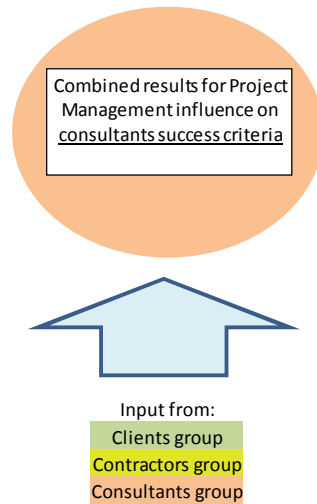


Figure 6 – Consultant success criteria results

Again, the question in the questionnaire which related to the consultants set of critical success criteria are noted below.

Question: Through your past experience and perceptions, please indicate the influence an appointed Project Manager had on the outcomes of the following project success criteria which related to the role of a Consultant in the Construction Industry (over a period of the past 10 years).

The results relating to the question are indicated in the following tables (Tables 12-15):

Table 12 - Consultant Criteria: Combined results

	Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Consultants Market Share (Potential of increase of consultants market share)	0	12	9	1	0	1
2	Consultants Reputation (Reputation of the consultant)	2	14	7	0	0	0
3	Skill Training (Enhanced skills of consultants personnel involved)	0	11	11	0	0	1
4	Consultants Profit (Realisation of consultants profit potential)	2	10	7	4	0	0
5	All Team Members Satisfied (Satisfaction of all team members involved)	3	16	2	2	0	0
6	Repeat Work for consultant (Re-appointment of consultant due to past performance)	4	13	6	0	0	0
7	Safety (Safety of work undertaken in general)	3	6	13	1	0	0
8	Benefits to consultants project personnel (Benefits to those involved)	1	15	7	0	0	0
9	Absence of legal Claims	2	15	6	0	0	0
10	Successful commissioning (Commissioning of the constructed works)	3	18	2	0	0	0
11	Functional Requirements (Functional requirements of the end product met)	5	13	5	0	0	0
12	Consultants Time/Schedule (Project completed within the given timeframes)	6	17	0	0	0	0
13	Consultants Budget (project completed within the consultants budget)	0	11	6	6	0	0
14	Quality (project completed to the required quality)	2	16	5	0	0	0
15	Satisfy Stakeholders/Client (Satisfaction with end product)	5	17	1	0	0	0
16	Meeting Clients Strategic organisational objectives	5	14	4	0	0	0
	Total	43	218	91	14	0	2

Table 13 - Consultant Criteria: Client results

	Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Consultants Market Share (Potential of increase of consultants market share)	0	1	3	0	0	0
2	Consultants Reputation (Reputation of the consultant)	0	3	1	0	0	0
3	Skill Training (Enhanced skills of consultants personnel involved)	0	3	0	0	0	1
4	Consultants Profit (Realisation of consultants profit potential)	0	2	2	0	0	0
5	All Team Members Satisfied (Satisfaction of all team members involved)	0	3	1	0	0	0
6	Repeat Work for consultant (Re-appointment of consultant due to past performance)	1	1	2	0	0	0
7	Safety (Safety of work undertaken in general)	0	1	2	1	0	0
8	Benefits to consultants project personnel (Benefits to those involved)	0	3	1	0	0	0
9	Absence of legal Claims	0	3	1	0	0	0
10	Successful commissioning (Commissioning of the constructed works)	0	4	0	0	0	0
11	Functional Requirements (Functional requirements of the end product met)	0	4	0	0	0	0
12	Consultants Time/Schedule (Project completed within the given timeframes)	0	4	0	0	0	0
13	Consultants Budget (project completed within the consultants budget)	0	2	2	0	0	0
14	Quality (project completed to the required quality)	0	3	1	0	0	0
15	Satisfy Stakeholders/Client (Satisfaction with end product)	0	4	0	0	0	0
16	Meeting Clients Strategic organisational objectives	0	2	2	0	0	0
	Total	1	43	18	1	0	1

Table 14 - Consultant Criteria: Contractor results

	Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Consultants Market Share (Potential of increase of consultants market share)	0	2	2	0	0	0
2	Consultants Reputation (Reputation of the consultant)	0	4	0	0	0	0
3	Skill Training (Enhanced skills of consultants personnel involved)	0	1	3	0	0	0
4	Consultants Profit (Realisation of consultants profit potential)	0	3	1	0	0	0
5	All Team Members Satisfied (Satisfaction of all team members involved)	0	4	0	0	0	0
6	Repeat Work for consultant (Re-appointment of consultant due to past performance)	1	3	0	0	0	0
7	Safety (Safety of work undertaken in general)	0	1	3	0	0	0
8	Benefits to consultants project personnel (Benefits to those involved)	0	4	0	0	0	0
9	Absence of legal Claims	0	3	1	0	0	0
10	Successful commissioning (Commissioning of the constructed works)	0	4	0	0	0	0
11	Functional Requirements (Functional requirements of the end product met)	1	3	0	0	0	0
12	Consultants Time/Schedule (Project completed within the given timeframes)	1	3	0	0	0	0
13	Consultants Budget (project completed within the consultants budget)	0	2	2	0	0	0
14	Quality (project completed to the required quality)	1	3	0	0	0	0
15	Satisfy Stakeholders/Client (Satisfaction with end product)	1	3	0	0	0	0
16	Meeting Clients Strategic organisational objectives	1	3	0	0	0	0
	Total	6	46	12	0	0	0

Table 15 - Consultant Criteria: Consultant results

	Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure
1	Consultants Market Share (Potential of increase of consultants market share)	0	9	4	1	0	1
2	Consultants Reputation (Reputation of the consultant)	2	7	6	0	0	0
3	Skill Training (Enhanced skills of consultants personnel involved)	0	7	8	0	0	0
4	Consultants Profit (Realisation of consultants profit potential)	2	5	4	4	0	0
5	All Team Members Satisfied (Satisfaction of all team members involved)	3	9	1	2	0	0
6	Repeat Work for consultant (Re-appointment of consultant due to past performance)	2	9	4	0	0	0
7	Safety (Safety of work undertaken in general)	3	4	8	0	0	0
8	Benefits to consultants project personnel (Benefits to those involved)	1	8	6	0	0	0
9	Absence of legal Claims	2	9	4	0	0	0
10	Successful commissioning (Commissioning of the constructed works)	3	10	2	0	0	0
11	Functional Requirements (Functional requirements of the end product met)	4	6	5	0	0	0
12	Consultants Time/Schedule (Project completed within the given timeframes)	5	10	0	0	0	0
13	Consultants Budget (project completed within the consultants budget)	0	7	2	6	0	0
14	Quality (project completed to the required quality)	1	10	4	0	0	0
15	Satisfy Stakeholders/Client (Satisfaction with end product)	4	10	1	0	0	0
16	Meeting Clients Strategic organisational objectives	4	9	2	0	0	0
	Total	36	129	61	13	0	1

4.2.3.6 Question 10 - Agreement with success criteria listed

The question in the questionnaire read as follows:

Do you agree that the above success criteria could be used to measure a project's success relative to your involvement?

Summary of results are shown in the table below.

Table 16 - Agreement with success criteria results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
21	2	0	23	4	0	0	4	4	0	0	4	13	2	0	15

4.2.3.7 Question 11 - Exclusions to list of success criteria

The following question was asked relating to the list of success criteria:

Indicate which of the above success criteria you would exclude?

Summary of results:

Only three respondents noted that the following success criteria should be excluded:

Table 17 – Question 11 feedback results

Respondent		Comment/Response
Respondent	1	"Consultants Reputation"
		"Skill Training"
		"Consultants Profit"
		"Benefits to consultants project personnel"
		"Absence of legal claims"
Respondent	2	"Skill Training"
Respondent	3	"Consultants reputation"
		"Skill Training"

It should also be noted that the three above respondents were consultants.

4.2.3.8 Question 12 - Additions to list of success criteria

The question relating to the addition of success criteria read as follows:

Would there be any additional success criteria not listed above that should be included?

Summary of responses:

Four respondents noted that the following success criteria could be added to the list:

Table 18 – Question 12 feedback results

<u>Respondent</u>		<u>Comment/Response</u>
Respondent	1	Successful dissemination of information
		Successful coordination of the design
		Timely payment by the client
		Timely and fair arbitration/decisions on quality and claims
		Client management
Respondent	2	Proper coordination of project
Respondent	3	Coordination of design
Respondent	4	Environmental compliance
		Innovation of design
		Cost effective design

4.2.4 Section 3 – General Questions results

4.2.4.1 Introduction

The results for each of the general questions will be reflected in tables. Results will be noted in the following ways:

- Tables will indicate the actual feedback given by the respondents for each question.
- Where relevant, tables will be used to show the verbal feedback given. In each case an applicable question related aspect was added next to the comments to assist the reader with further referencing during the interpretation summary of the results.

In each instance, the actual question in the interview questionnaire will be noted.

4.2.4.2 Question 13 - Improvement of influence on project success criteria

The question in the questionnaire stated:

How can Project Managers further improve their influence relative to the project success criteria?

Summary of responses:

For ease of analysis and interpretation, the respondent feedback was linked to an overarching characteristic which will be used to summarise the feedback in the next chapter. Nineteen of the respondents noted that the following could be done by Project Managers to improve their influence on the project success criteria:

Table 19 - Question 13 feedback results

Respondent		Comment/Response	Aspect
Respondent	1	Project Managers should be more experienced and have the contractual background.	Technical
		Project Managers should be professional and have the ability to deal with skilled persons and understand workforce restraints.	Soft/People skill
Respondent	2	Project Managers should be more effective.	Management
Respondent	3	Project Managers should always make a positive impact, add value and not just give instructions.	Soft/People skill
Respondent	4	PM should ensure good communication which is: structured, short and to the point, well timed and be able to anticipate when what is required.	Soft/People skill
Respondent	5	PM should ensure proper team coordination on design.	Management
		PM should be the communication/Interface between client and stakeholders	Soft/People skill
Respondent	6	PM should understand scope of work better. PM's do not always understand the amount of work involved in design.	Technical
		PM to ensure that budgets are realistic.	Budget and Schedule
Respondent	7	PM's to draw up and control the program/Schedule.	Budget and Schedule
		PM's to control and monitor to ensure that everyone does what they need to do in terms of the program	Budget and Schedule
		PM to proactively manage and pre-empt issues that might arise.	Management
Respondent	8	PM to be direct with the client (manage client better).	Management
		PM to ensure that requirements are in line with budget cuts and changes.	Budget and Schedule
Respondent	9	PM to build team spirit.	Soft/People skill
Respondent	10	PM to have a constant awareness of the progress and problems. PM to report to the client on issue as they arise.	Management
		PM to be hands-on with contractor – know drawings and detail.	Technical
		PM needs to be sector related.	Technical
Respondent	11	PM to keep sanity and make the final decision.	Management
Respondent	12	It is very important to know the buck stops with the PM.	Management
Respondent	13	PM to be more hands-on.	Technical
		PM to make decisions, lead.	Management
Respondent	14	PM to be better at communication and enforcing response.	Soft/People skill
Respondent	15	PM to be more involved on site with the contractor to view the same goal.	Soft/People skill
Respondent	16	PM should not get involved in specialists work.	Technical
Respondent	17	PM to have more focus on coordination without the client involvement.	Soft/People skill
Respondent	18	PM to be clear and strong with client.	Management
		PM to look at the broad picture.	Management
		PM to always go the extra mile.	Management
		PM to identify shortcomings and address them.	Management
		PM to deal with community on behalf of client.	Soft/People skill
Respondent	19	PM to create confidence in external stakeholders – deal with external parties, build bridges. Interact at next level – act as client's representative & agent.	Soft/People skill

4.2.4.3 Question 14 - Project Management's legitimate or integral part in the industry

The question in the questionnaire read as follows:

Through your experience and perceptions, do you regard Project Managers as a legitimate or integral part of the South African Construction Industry?

Summary of results are shown in Table 20 below.

Table 20 - Question 14 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
21	1	1	23	4	0	0	4	4	0	0	4	13	1	1	15

Summary of responses in Table 21 below.

Eighteen of the respondents noted the following in connection with Project Managers being a legitimate or integral part of the industry:

Table 21 - Question 14 explanation results

Respondent	Comment/Response	Aspect
Respondent 1	Yes it is a legislated profession like all other professions	General
Respondent 2	There is a need for a qualified person (PM) to drive a project as a team leader to satisfy the client goals and, construction skill, to client's goals expectations.	Management
Respondent 3	PM's play a huge part due to the lack of skills and experience all round.	Management
Respondent 4	If the project size justify it.	Size/Complexiity
Respondent 5	Poor PM has given the PM profession a bad name.	General
Respondent 6	The days are gone to do Architect/Engineer to do PM. They are not trained or qualified.	Management
Respondent 7	Large projects – the need arises to control the project properly. PM's are not always adding value, just another cost.	Size/Complexiity
Respondent 8	PM's are required only on major multidisciplinary projects.	Size/Complexiity
Respondent 9	PM is required to facilitate and coordinate all the various disciplines	Management
Respondent 10	Service line groups can then focus on the core duties/design.	Team focus
Respondent 11	Others can focus on their duties – contractors and consultants.	Team focus
Respondent 12	In a tender market, there must be a PM, to protect the contractor.	Management
Respondent 13	Others can focus – they do not have a dual function.	Team focus
Respondent 14	PM must add value. Integration better between Engineers/Architect. PM's must be strong in the field and make decisions.	Management
Respondent 15	As the client, it gives you one person to liaise with and to fulfill the role	Management
Respondent 16	PM's are needed on multidiscipline projects.	Size/Complexiity
Respondent 17	PM can focus on implementation. Designers can focus on design. PM is crucial. PM needs knowledge and experience. PM needs to identify were designers are falling short. PM to ensure that all the parties keep focus and designers cannot get sidetracked.	Management / Team focus
Respondent 18	PM can act impartial and on behalf of the client. PM ensures good management, control and planning. Frees up other professionals to do what they do.	Management / Team focus

4.2.4.4 Question 15 - Probability of success when appointing a Project Manager

The question relating to the probability of the project being more successful when a Project Manager was appointed read as follows:

Do you think the appointment of a Project Manager increases the probability of the project in general being successful?

Summary of results are shown in Table 22 below.

Table 22 - Question 15 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
21	1	1	23	4	0	0	4	3	0	1	4	14	1	0	15

Thirteen of the respondents noted the following with regards to the increased probability of a project being successful when Project Managers were appointed. Summary of the responses are noted in Table 23 below.

Table 23 - Question 15 explanation results

<u>Respondent</u>	<u>Comment/Response</u>	<u>Aspect</u>
Respondent 1	Being in overall control of the project, PM's determine the success of a project through their leadership.	Management
Respondent 2	It is best if the PM does not have other duties. Need for a PM is related to the size of a project.	Team focus
Respondent 3	A PM gives the project a single point responsibility and is not shared with other duties.	Management / Team focus
Respondent 4	General Communications are better – The PM is a duct of communication between all involved.	Management
Respondent 5	Projects must be large enough. If too small, PM is just another expense.	Size/Complexity
Respondent 6	One controlling body to deal with all the issues questions and make decisions	Management
Respondent 7	Even if a PM is appointed, it is not guaranteed that the design team will perform.	General
Respondent 8	PM takes responsibility and functions away from the designers, and they focus on the technical issues.	Team focus
Respondent 9	Yes, PM can be one point of contact for all parties.	Management
Respondent 10	The appointment of a PM creates the situation where there is less confrontation and more fairness in a tender market.	General
Respondent 11	PM will have to drive and lead, be in control.	Management
Respondent 12	PM is only required on multidiscipline projects.	Size/Complexity
Respondent 13	Clients cannot manage – they have their own priorities. PM's are definitely required, to keep the foot on the peddle. Keep team motivated. Designers don't have time.	Management / Team focus

4.2.4.5 Question 16 - Project Management success when fulfilled by a stand-alone Project Manager

The question relating to the success of Project Management when it is fulfilled by a stand-alone PM stated:

Through your experience and perceptions, is the Project Management function more successful when fulfilled by a stand-alone Project Management Professional?

The Table 24 below indicates the results.

Table 24 - Question 16 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
20	1	2	23	4	0	0	4	4	0	0	4	12	1	2	15

Summary of responses relating to the question shown in Table 25:

Eleven of the respondents indicated the following explanation with regards to Project Management function being fulfilled by a stand-alone Project Manager:

Table 25 - Question 16 explanation results

<u>Respondent</u>	<u>Comment/Response</u>	<u>Aspect</u>
Respondent 1	A stand-alone PM should not be influenced by any particular consultant. It cannot be a part time job which takes the back seat.	Team focus
Respondent 2	Architects cannot do PM properly.	Team focus
Respondent 3	Architect/Principal Agent's focus on doing design and not Project Management of the design. PM function to be exercised throughout the project life cycle. The PM gives communications through the team and spreads to the client. PM should fulfill PA duties in a JBCC contract.	Management / Team focus
Respondent 4	No, the right people must be involved. QS and Architect can also do the job.	Management
Respondent 5	PM's do Project Management only – they don't have split responsibilities.	Team focus
Respondent 6	Depends on the size of the project – magnitude and scale.	Size/Complexity
Respondent 7	If a person specializes in PM, they will not get entangled in the technical issues.	Team focus
Respondent 8	Definitely.	Management
Respondent 9	Engineers miss sections of basic PM. Registration important. Principles of PM are very important.	Management
Respondent 10	PM's should not get involved with nor do specialist work as well.	Team focus
Respondent 11	The PM duties are not part of design issues. PM more focused on management. Not side tracked. The PM is the Client's agent and have clients interest at heart.	Management / Team focus

4.2.4.6 Question 17 – Respondents’ feedback on future response to a Project Manager appointment

The question relating to future appointments differed slightly with regards to the role that each of the respondent groups usually plays on a project:

Contractor/Consultant question: Would you be positive or negative with regards to the appointment of a PM on the next construction project you are involved with?

Client question: Would you consider appointing a PM on the next construction project you are involved with?

The Table 26 below indicates the results.

Table 26 - Question 17 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Positive	Negative	0	Total	Positive	Negative	Both	Total
22	0	1	23	4	0	0	4	4	0	0	4	14	0	1	15

4.2.4.7 Question 18 - Project Management – Skill or Profession

The question with regard to PM being a skill or profession stated the following:

Would you understand Project Management as being more related to a specific person's skills than to a specific profession?

The Table 27 below indicates the results.

Table 27 - Question 18 results

Combined				Client				Contractor				Consultant			
Skills	Profession	Both	Total	Skills	Profession	Both	Total	Skills	Profession	Both	Total	Skills	Profession	Both	Total
12	4	7	23	1	2	1	4	2	0	2	4	9	2	4	15

Summarised in the Table 28, are the nineteen responses given in relation to Project Management being more related to a person’s skill than to a profession.

Table 28 - Question 18 explanation results

<u>Respondent</u>		<u>Comment/Response</u>
Respondent	1	Any consultant can have PM skills.
Respondent	2	A PM must have both skill and technical ability. Also “hard” and “soft” competencies.
Respondent	3	PM is a combination of both. PM’s need to be professional, but also need the relevant technical skill.
Respondent	4	Engineers and Architects can be good. Depends on skill.
Respondent	5	Personality is also a factor. Personal skills are even more important than technical skills. Be assertive.
Respondent	6	PM is both a skill and profession. PM must have experience and the academic background. It is of major importance for PM’s to have people skills & create a team environment. PM’s must manage the client and all others that are involved.
Respondent	7	All professions can be PM, but the skill is required.
Respondent	8	Any profession can perform the PM role, but with the right skills. Specialist PM can work with a financial controller – QS.
Respondent	9	Management skill is required.
Respondent	10	PM needs both. Architects who are PM’s are not consistently good or bad.
Respondent	11	Skills and experience are built up over time.
Respondent	12	PM should have a lot of industry knowledge.
Respondent	13	People skills are important.
Respondent	14	Profession is the base of the skill. A PM must be a professional.
Respondent	15	Architects can also be good PM’s.
Respondent	16	It is a skill, but not anyone can do PM work. PM requires background knowledge, technical skills and technical knowledge.
Respondent	17	PM is more related to skill on small projects. A professional is needed on large projects.
Respondent	18	It is a skill. A person could be good at design, but not good at PM.
Respondent	19	Not anyone can be a PM. It is more a profession. Skills are derived from training and education.

4.2.4.8 Question 19 - Other consultants’ time to fulfil the Project Manager’s role

The question requesting feedback on other consultants having the time to fulfil the PM role stated:

Do you perceive other consultants (other than Project Managers) as having the time during projects to be able to still fulfil the role of the Project Manager?

The Table 29 below indicates the results.

Table 29 - Question 19 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
4	11	8	23	0	4	0	4	0	2	2	4	4	5	6	15

Eighteen of the respondents noted the following responses in Table 30 below, to other consultants having the time during a project to be able to fulfil the role of a PM:

Table 30 - Question 19 explanation results

<u>Respondent</u>		<u>Comment/Response</u>	<u>Aspect</u>
Respondent	1	Project Management is a full time function which cannot be scaled down.	General
Respondent	2	The time restraints and speed of construction does not allow it. Impartiality is required.	General
Respondent	3	Other disciplines might be able to, but cannot fulfill both roles on one project.	General
Respondent	4	The answer is project size related	Size/Complexity
Respondent	5	The situation relates or depends on the individuals	General
Respondent	6	PM's create a single point of responsibility.	General
Respondent	7	Others cannot fulfill the function due to complexity and client demands becoming too much.	Size/Complexity
Respondent	8	Related to project size.	Size/Complexity
Respondent	9	Related to size – Yes, in the case of a large multi-disciplinary project with many consultants	Size/Complexity
Respondent	10	Small projects – Yes. Large – No.	Size/Complexity
Respondent	11	The PM must be the PM.	General
Respondent	12	Relates to project size, but complexity needs to be looked at.	Size/Complexity
Respondent	13	Yes, but only on smaller projects	Size/Complexity
Respondent	14	Double tasked consultant is never truly objective with late issue of info.	Size/Complexity
Respondent	15	Other consultants are too focused on their discipline.	General
Respondent	16	The size of the project matters.	Size/Complexity
Respondent	17	It is size and complexity related. On specific project, PM can do non-core related reporting.	Size/Complexity
Respondent	18	I have seen it go wrong. It is only the exemption where a design consultant can be a good PM and still design.	General

4.2.4.9 Question 20 - Critical skills and attributes

Respondents were also requested to comment on the following question:

What skills or attributes should Project Managers have to ensure that they may positively influence the project success criteria? Please list these.

Twenty-three of the respondents indicated the following skills and attributes which PM's should have to ensure that they influence project success criteria positively (Table 31):

Table 31 - Question 20 explanation results

Respondent		Comment/Response	Aspect
Respondent	1	Communication, assertiveness, leadership, lateral thinking.	Personal/People; Management
Respondent	2	Construction knowledge, financial knowledge, negotiation ability, leadership, decision making, objectiveness and fairness/impartiality.	Personal/People; Technical; Management
Respondent	3	Good leader, People skills, handles stress, Good communicator, largely experienced, ability to drive a contract.	Personal/People; Technical; Management
Respondent	4	Good admin skills, Understand other disciplines challenges.	Technical; Management
Respondent	5	Good PM background, Knowledge of PMBOK, Express themselves, add value, clear vision, direction, guidance.	Personal/People; Management
Respondent	6	Balance between personal and tech skills. Personal: Communicator, assertive, mature, not emotional. Tech: Planning, programming, Financial.	Personal/People; Technical; Management
Respondent	7	People skills, negotiator, logical, team leader, give team confidence in yourself. Not a dictator. Good listener.	Personal/People; Management
Respondent	8	Personal and Technical	Personal/People; Technical
Respondent	9	Time management/programming, people skills, Kick ass nicely. Diplomacy.	Personal/People; Technical; Management
Respondent	10	Good understanding of the project and its various requirements, helpful, make decisions, instruct, direct, inform. Gather info.	Personal/People; Management
Respondent	11	People skills, financial management.	Personal/People; Management
Respondent	12	Communication, industry knowledge, engineer himself	Personal/People; Technical
Respondent	13	Enforce authority, team player, diligent, reliable, good communicators.	Personal/People
Respondent	14	Patience, knowledge and the ability to remain calm in a crisis	Personal/People
Respondent	15	People skills, motivation, strong leadership, fairness, not forceful.	Personal/People; Management
Respondent	16	Firm and strong	Personal/People
Respondent	17	Leadership, Interpersonal skills, lead, assertive, direction give.	Personal/People; Management
Respondent	18	Experience.	Technical
Respondent	19	Management skill, writing skills, Communication skills	Personal/People; Management
Respondent	20	Listener, assess situations, good perception.	Personal/People
Respondent	21	Technical, Person Skills, holding others accountable.	Personal/People; Technical; Management
Respondent	22	PMBOK, finances, negotiate, business skills, approachable, understand people.	Personal/People; Technical; Management
Respondent	23	Negotiation, Perfectionist, Financial acumen, Ethical, Integrity, Honest, Trustworthy, Leading ability, Personality, Think logically, Think on their feet. Good communicators, visionary, good tech knowledge, PM knowledge, ability to plan. Attention to detail, all-rounder, disciplined, diplomatic.	Personal/People; Technical; Management

4.2.4.10 Question 21 - Appointment of Project Manager – project size/value related

The following was asked with regard to the appointment of a PM:

Would you perceive the need for the appointment of a Project Manager as being in direct relation to the size and value of a project?

The table 32 below summarizes the feedback.

Table 32 - Question 21 results

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
15	4	4	23	2	1	1	4	2	1	1	4	11	2	2	15

Fourteen of the respondents stated the following in regard to the PM's appointments being in direct relation to the size and value of a project (Table 33):

Table 33 - Question 21 explanation results

Respondent	Comment/Response	Aspect
Respondent 1	Small projects under +- R30m can be easily handled by a principal agent as there would be a limited number of consultants involved.	Size/Value
Respondent 2	On small projects, you can get away without a Project Manager, but there must also take into account how complicated the project is.	Size/Value; Complexity
Respondent 3	PM is not required on small jobs, but complexity does play a role.	Size/Value; Complexity
Respondent 4	The appointment should be related to complexity and multidisciplinary projects.	Complexity
Respondent 5	On small and isolated projects, PM is not needed. Complexity is the measure! Integration and interfacing can be a problem on small projects.	Size/Value; Complexity
Respondent 6	Generally yes, but not always.	Size/Value
Respondent 7	Bigger projects must have a PM – value related.	Size/Value
Respondent 8	Yes, may not be required on small projects.	Size/Value
Respondent 9	Complexity of project should govern the appointment	Complexity
Respondent 10	On small projects, there are also issues, some times more input for small projects; big contractors have registrations with standards organizations like ISO.	Size/Value
Respondent 11	On larger projects, they are required and on multidiscipline projects.	Size/Value; Complexity
Respondent 12	The appointment should be complexity related.	Complexity
Respondent 13	All projects need specific attention. PM can handle many small projects. Large projects – need a PM definitely. Small projects – PM can manage many at once.	Size/Value; Complexity
Respondent 14	Organisation needs to make a decision. But also use external PM's if need be. Someone must fulfill the PM duties, if you don't have the internal skill.	General

4.3 Analysis – Introduction

In this section the analysis of the data will be presented in the following ways:

Firstly, Section 1 Demographic Profile analysis will be shown in graphs and some specific points of interest will be noted.

Secondly, Section 2 Critical Success criteria analysis will again give a brief explanation of how the analysis was done. Then the analysis will be graphically presented in a dash-board to indicate and highlight the outcomes. With each dash-board, the themes of interest for sub-problem 1 will be discussed.

Finally, in Section 3 General Questions analysis, the analysed outcomes will be given in graphs where applicable. The qualitative data were summarised for ease of interpretation. All the analysed feedback for Section 3 relates to the hypotheses linked to sub-problem 2 and 3.

4.3.1 Section 1 - Demographic Profile analysis

4.3.1.1 Introduction

The demographic profile of the respondents was set up to probe the following:

- The relevant experience of the respondents
- The applicable background in relation to the research

4.3.1.2 Question 1 - The period an organisation has been involved in the construction industry

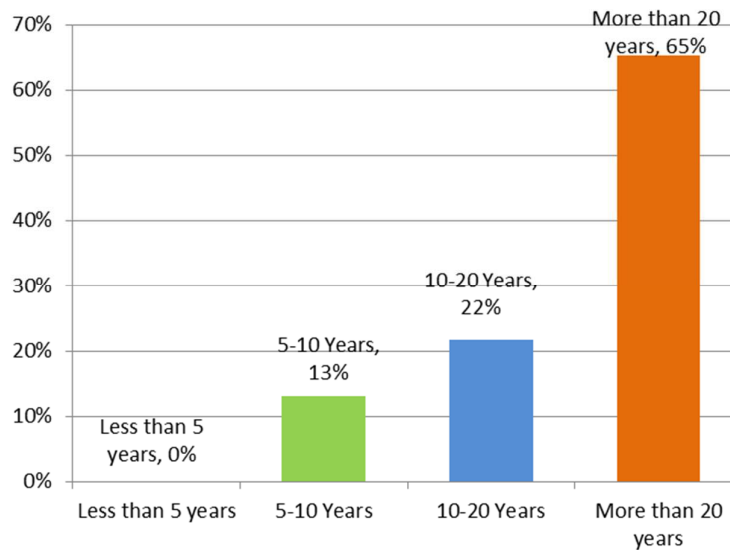


Figure 7 - Period of organisation involved in the construction industry

Figure 7 indicates the number of years the respondent's organisation has been involved in the construction industry. It can be noted that 65% of the respondent's organisations which they work for have been involved in the industry for more than twenty years.

4.3.1.3 Question 2 – Respondents' gender

From the results it is apparent that 100% of the respondents were male. The respondents being all male could be related to the fact that the industry is still male dominated and even more so in the age groups involved.

4.3.1.4 Question 3 – Respondents' age

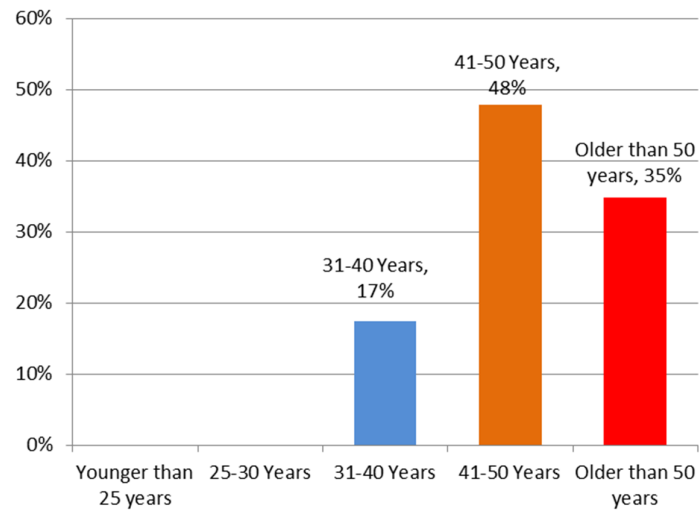


Figure 8 – Respondents' age

Figure 8 shows the category in which the respondents' age fall. It is shown that all respondents were older than the age of thirty, and the combination of the higher categories show that 83% of the respondents were aged above forty (48% between forty and fifty; 35% over fifty).

4.3.1.5 Question 4 – Respondents' period of time/experience involved in the Construction industry

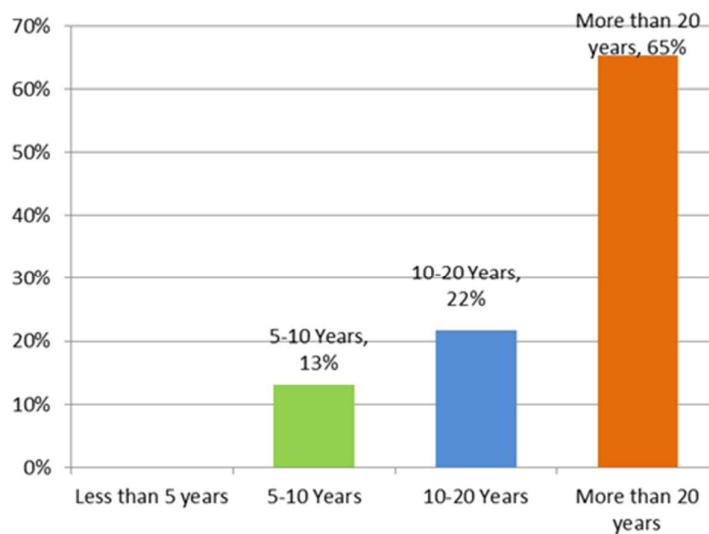


Figure 9 – Respondents' experience

Figure 9 indicates the period which the respondents have been involved in the construction industry. It can be seen that 65% of the respondents have been involved in the construction industry for more than twenty years.

4.3.1.6 Question 5 – Respondents’ highest formal qualification

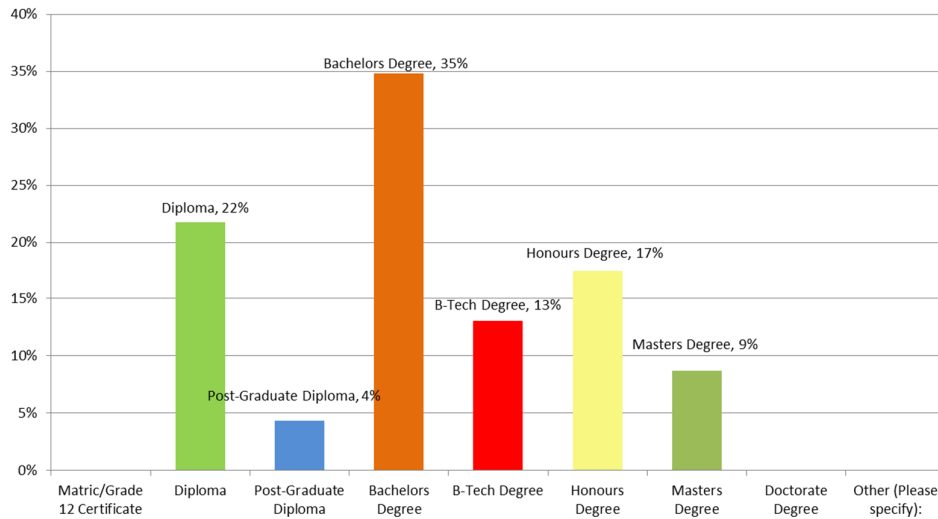


Figure 10 – Respondents’ qualification

Figure 10 shows the respondents feedback with regards to their respective highest formal qualification. A wide range of qualifications were noted by the respondents with most (35%) having Bachelors degree's.

4.3.1.7 Question 6 - Status in the organisation

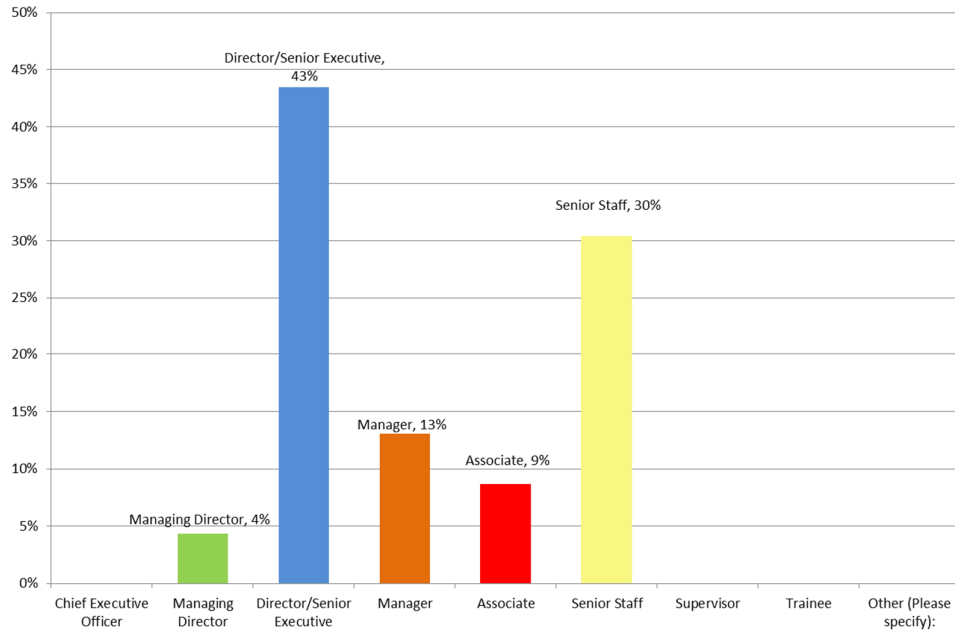


Figure 11 – Respondents' status

Figure 11 shows the status or position which the respondent holds within their organisation. Most of the respondents were either:

- Director/Senior Executives (43%), or
- Senior Staff (30%).

4.3.1.8 Question 7 - Size of projects involved with

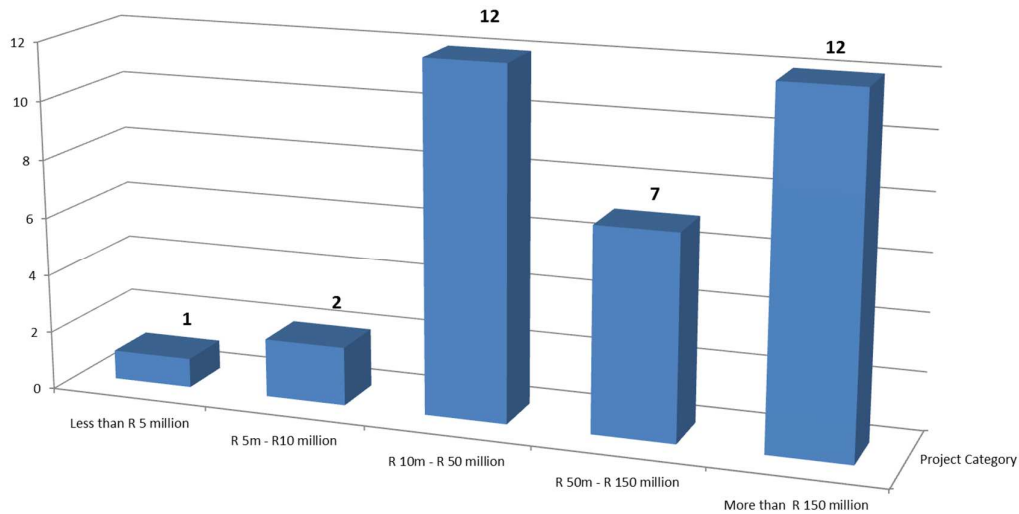


Figure 12 - Size of projects

Figure 12 indicates the number of respondents in relation to the size of projects they were involved in where a Project Manager was appointed. Most respondents indicated that they have worked on projects in the ranges of:

- R10 million - R50 million, and
- More than R150 million

4.3.1.9 Question 8 - Geographical areas in which respondents have worked

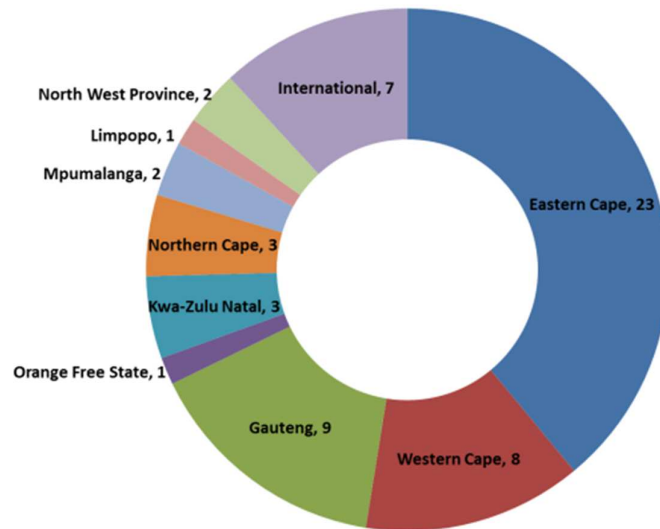


Figure 13 - Geographical areas

Figure 13 notes the geographical areas within which the respondents were involved during their Construction Industry careers. A wide range of areas were noted in the feedback with most (twenty three) indicating that they have been active in the Eastern Cape. It can be noted that the respondents worked in all the provinces in South Africa and seven indicated international experience.

4.3.2 Section 2 – Critical Success criteria analysis

4.3.2.1 Introduction

As noted in Section 3.6 (Questionnaire Design) and graphically depicted in Figure 14, each role-player was requested to, with regards to project success criteria, give feedback in relation to:

- The respondent's views on the influence of Project Managers on the relevant respondents own set of project success criteria, and
- The respondent's views on the influence of Project Managers on the other role-players set of project success criteria.

The above feedback will be shown in the following sections to reflect:

- The overall combined results for Project Management influence on the role-players success criteria,
- Combined results for Project Management influence on clients success criteria
- Combined results for Project Management influence on contractors success criteria
- Combined results for Project Management influence on consultants success criteria

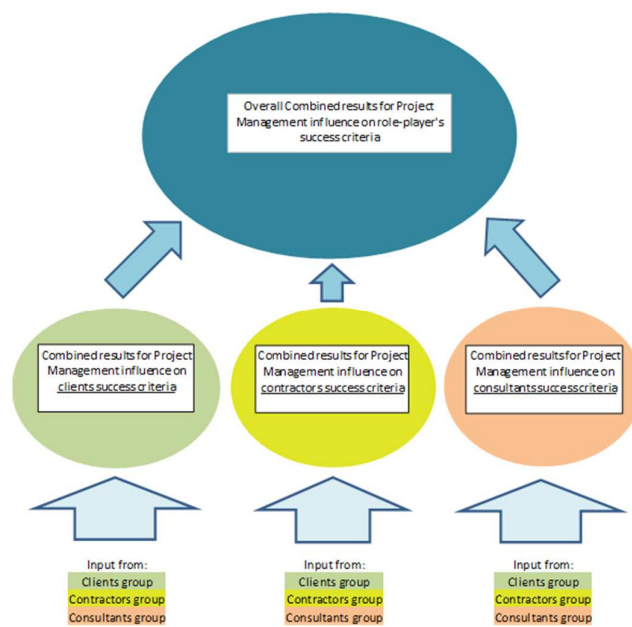


Figure 14 - Combined results of PM influence

For ease of analysis and presentation, a dash-board was set up for each influence section (Role-players, Client, Contractor and Consultant). The dash-board consists of the following:

1. A bar chart indicating the combined feedback of the respondents.
2. A colour coded table indicating the six categories of answers which the respondents were able to give. This table includes all the relevant input for each section and indicates the data from where the percentages in the graphs were calculated.
3. In each instance another table which is split into three separate sections indicating the individual feedback of the respondents which makes up the overall combined feedback.
4. A table noting the Mean, Mode, Range and Standard Deviation of the respondent's feedback.
5. Finally, a summary of the analysis will be given for each section to highlight what was perceived with regards to the combined and individual feedback by each of the role-players groups.

Further to the above, and as clarification, the following can be noted with regards to the statistical measures of central tendency and dispersion:

- The mean in this case will indicate the numerical average of the responses (Leedy & Ormrod, 2001, p. 267)
- The mode will note the most frequently noted response (Leedy & Ormrod, 2001, p. 267)
- The range states the difference between the highest and lowest response (Leedy & Ormrod, 2001, p. 270)
- The standard deviation will indicate the distribution of all the responses around the mean. It is a good indication of the consistency of the responses (Leedy & Ormrod, 2001, p. 269)

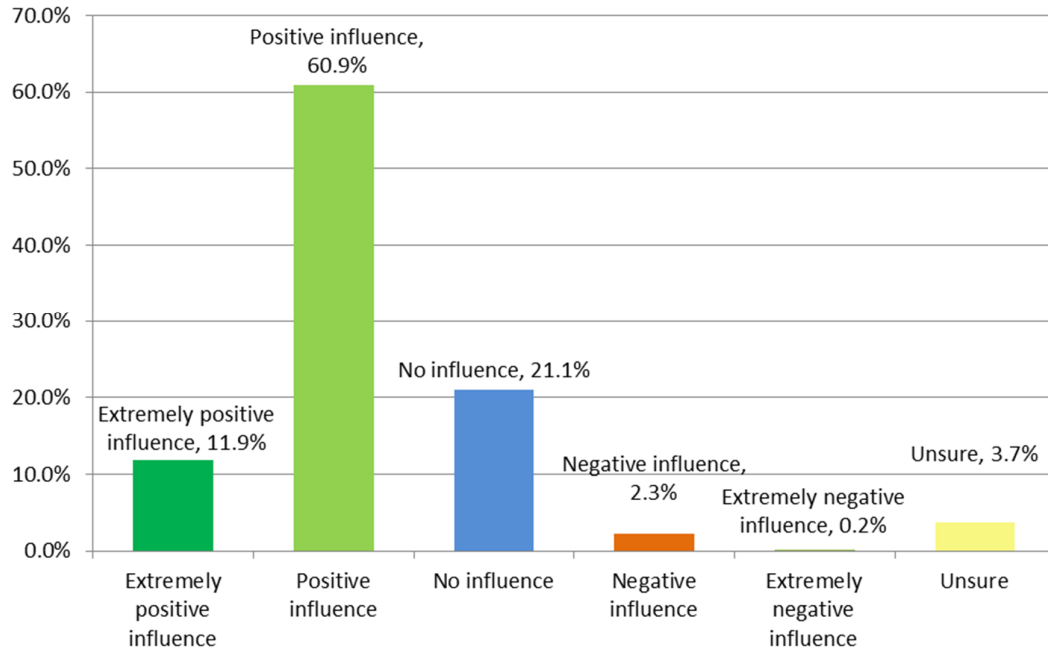
The dash-board was set up for each influence section to ensure that the reader will be able to, at a glance, perceive and comprehend the total feedback which relates to each influence section. The dash-board includes all the relevant information for each section of influence.

To ensure continuity during the analysis, where percentages are applicable, the wording used as part of the analysis will have the following meaning:

- Vast majority: more than 75%
- Majority: 60% – 75%
- Mostly: 50% - 60%
- Partly: 40% - 50%
- Minority: 25% - 40%
- Vast minority: less than 25%

(4.3.2.2 Combined influence on the role-players – continues on page 79)

4.3.2.2 Combined influence on the role-players



Client/Contractor/Consultant - Success Criteria	1 Extremely positive influence	2 Positive influence	3 No influence	4 Negative influence	5 Extremely negative influence	6 Unsure	Total
A Total of client critical success criteria	48	222	45	5	2	23	345
B Total of contractor critical success criteria	35	204	87	5	0	14	345
C Total of consultant critical success criteria	43	218	91	14	0	2	368
D Total of all critical success criteria	126	644	223	24	2	39	1058
Percentage of feedback on all critical success criteria	11.9%	60.9%	21.1%	2.3%	0.2%	3.7%	100%

Combined Results - Client criteria feedback								Combined Results - Contractor criteria feedback								Combined Results - Consultant criteria feedback							
1	2	3	4	5	6	Total		1	2	3	4	5	6	Total		1	2	3	4	5	6	Total	
48	222	45	5	2	23	345		35	204	87	5	0	14	345		43	218	91	14	0	2	368	
14%	64%	13%	1%	1%	7%	100%		10%	59%	25%	1%	0%	4%	100%		12%	59%	25%	4%	0%	1%	100%	

	Mean	Mode	Range	Std. Dev.
A Client criteria feedback	2.30	2	5	1.17
B Contractor criteria feedback	2.34	2	5	0.97
C Consultant criteria feedback	2.23	2	5	0.74
D Combined feedback	2.29	2	5	0.97

Figure 15 - Combined influence dash-board

From the dash-board (Figure 15) related to the combined influence of Project Management on the construction industry role-players project success criteria, the following can be seen:

The majority (72.8%) of the feedback noted that Project Managers have influenced the success criteria as a combined group of the role-players, positively.

Combined role-player success criteria feedback:

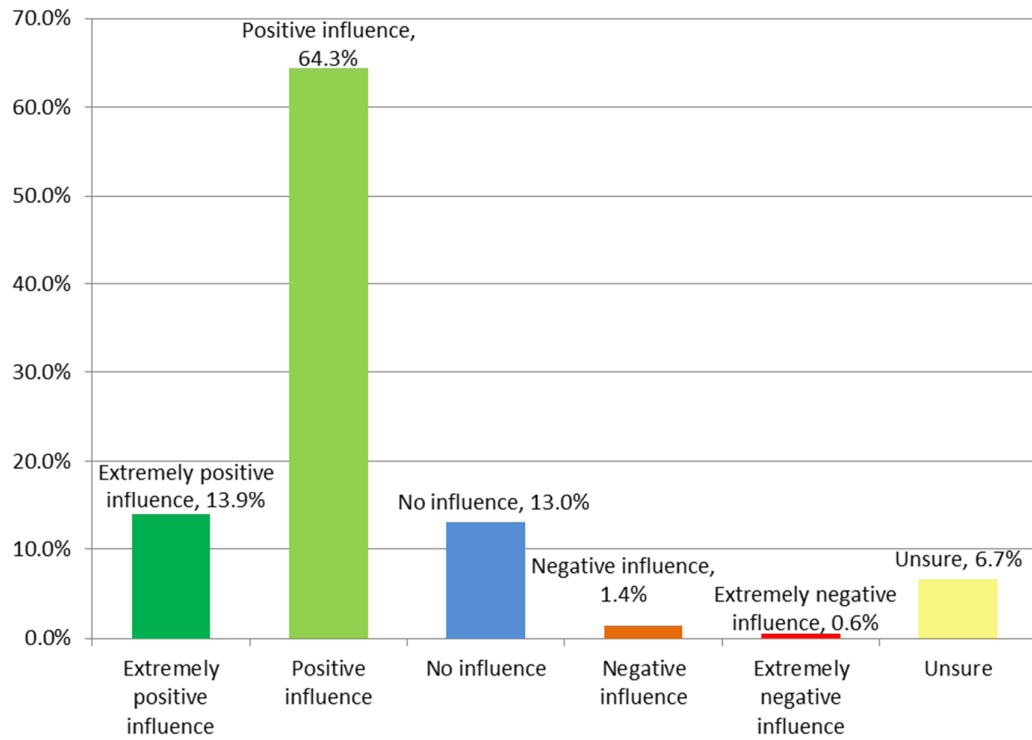
- The combined feedback indicated a 60.9% “positive influence”
- The combined “extremely positive influence” was 11.9%
- The “negative influence” and “extremely negative influence” of the combined role-player group was 2.3% and 0.2% respectively. The percentage negative feedback is very low in relation to the positive influence feedback.

Individual role-player success criteria feedback:

- A vast minority (21.1%) of the combined feedback indicated that Project Managers have “no influence” on the role-players success criteria, with feedback on the consultants and contractors success criteria individually noting the highest “no Influence” feedback with 25% each.
- All three inputs which make up the role-players individually indicated a majority positive influence, with the feedback on client group set of success criteria scoring the highest with 14% indicating an “extremely positive influence” and 64% indicating a “positive influence”.

The mode in all cases (combined, client criteria, contractor criteria and consultant criteria) was 2 (“positive influence”). The mode of 2 relates directly to the 60.9% indicating a combined “positive influence”. The standard deviation of the combined feedback (0.97) indicates the relatively close concentration of answers around the mean (2.29).

4.3.2.3 Influence on the client success criteria



Client - Success Criteria		1 Extremely positive influence	2 Positive influence	3 No influence	4 Negative influence	5 Extremely negative influence	6 Unsure	Total
A	Total of client feedback	10	35	6	2	2	5	60
B	Total of contractor feedback	6	51	3	0	0	0	60
C	Total of consultant feedback	32	136	36	3	0	18	225
D	Total of all feedback on client critical success criteria	48	222	45	5	2	23	345
Percentage of feedback on client critical success criteria		13.9%	64.3%	13.0%	1.4%	0.6%	6.7%	100%

Client								Contractor						Consultant									
1	2	3	4	5	6	Total		1	2	3	4	5	6	Total		1	2	3	4	5	6	Total	
10	35	6	2	2	5	60		6	51	3	0	0	0	60		32	136	36	3	0	18	225	
17%	58%	10%	3%	3%	8%	100%		10%	85%	5%	0%	0%	0%	100%		14%	60%	16%	1%	0%	8%	100%	

	Mean	Mode	Range	Std. Dev.
A Client feedback	2.43	2	5	1.37
B Contractor feedback	1.95	2	2	0.39
C Consultant feedback	2.36	2	5	1.23
D Combined feedback	2.30	2	5	1.17

Figure 16 - Client Success Criteria dash-board

The dash-board (Figure 16) associated with the combined influence of Project Management on the client's project success criteria, indicated the following:

The feedback on the Project Managers influence on the clients set of success criteria, was the most positive out of three influence groups which make up the combined feedback.

Combined role-player feedback:

- The vast majority of answers were positive (13.9% indicated a combined "extremely positive influence" and 64.3% a "positive influence").
- The combined "Negative influence" of the role-player group was 1.4%.
- The combined "Extremely negative influence" of the role-player group was 0.6%.

Individual group feedback:

- The highest "negative influence" percentage came from the client group, with 3%.
- The highest "extremely negative influence" percentage again came from the client group, with 3%.
- Of the combined feedback, 13% indicated that Project Managers have "no influence" on the client's success criteria, with consultants individually noting the highest "no Influence" feedback with 16%.
- All three groups which make up the role-players individually indicated a positive influence, with:
 - The client group scoring the highest with 17% indicating an "extremely positive influence", and
 - A vast majority of the contractor group scoring the highest with 85% indicating a "positive influence". The range (2) and standard deviation (0.39) of the contractors feedback relates to the high percentage and notes the close range of the answers given and very low deviation (Range = 2; Standard deviation = 0.39).

The mode in all cases (combined, client, contractor and consultant feedback) was 2 ("positive influence") and relates to the percentage of 64.3% indicating a combined "positive influence".

The table below (Table 34) depicts the combined feedback indicating the influence an appointed Project Manager has on the outcomes per client project success criteria as noted in the interview questionnaire.

Table 34 - Client Success Criteria feedback

	Client - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure	Totals
1	Clients Time/Schedule (Project completed within the given timeframes)	17%	70%	4%	4%	0%	4%	100%
		4	16	1	1	0	1	23
2	Clients Budget (project completed within the clients approved budget)	13%	70%	13%	0%	0%	4%	100%
		3	16	3	0	0	1	23
3	Quality (project completed to the clients required quality and standards)	4%	74%	22%	0%	0%	0%	100%
		1	17	5	0	0	0	23
4	Satisfied Stakeholders/Client (Satisfaction with end product)	4%	87%	4%	0%	0%	4%	100%
		1	20	1	0	0	1	23
5	Met Client's strategic organisational objectives	9%	70%	17%	4%	0%	0%	100%
		2	16	4	1	0	0	23
6	Clients Profit (Realisation of clients profit potential)	13%	61%	13%	0%	0%	13%	100%
		3	14	3	0	0	3	23
7	All Team Members Satisfied (Satisfaction of all team members involved)	9%	74%	0%	9%	0%	9%	100%
		2	17	0	2	0	2	23
8	Safety requirements (Safety of work undertaken in general)	17%	57%	22%	0%	4%	0%	100%
		4	13	5	0	1	0	23
9	Functional Requirements (Functional requirements of the end product met)	17%	43%	30%	0%	0%	9%	100%
		4	10	7	0	0	2	23
10	Clients Market Share (Potential of increase of clients market share)	9%	35%	30%	0%	4%	22%	100%
		2	8	7	0	1	5	23
11	Clients Reputation (Reputation of the client)	35%	39%	13%	0%	0%	13%	100%
		8	9	3	0	0	3	23
12	Benefits to the clients project personnel (Benefits to those involved)	0%	83%	9%	0%	0%	9%	100%
		0	19	2	0	0	2	23
13	Value for Money (Value achieved in relation to funds used)	13%	74%	9%	0%	0%	4%	100%
		3	17	2	0	0	1	23
14	Absence of legal Claims	30%	57%	9%	0%	0%	4%	100%
		7	13	2	0	0	1	23
15	Successful commissioning (Commissioning of the constructed works)	17%	74%	0%	4%	0%	4%	100%
		4	17	0	1	0	1	23
Average		13.9%	64.3%	13.0%	1.4%	0.6%	6.7%	

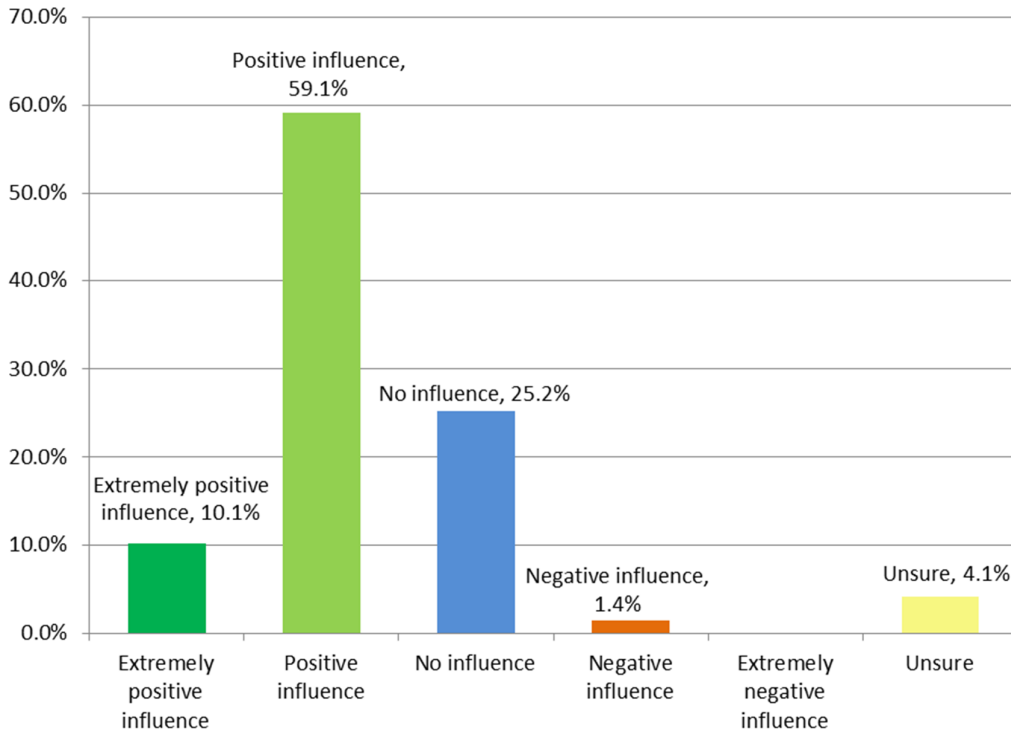
The following can be noted from the above:

- Due to the fact that the “Iron Triangle” (Weaver & Bourne, 2009) criteria of time, budget and quality is still an important measure of project success, special mention is made of the feedback on these criteria.
 - In relation to the clients time/schedule (Project completed within the given timeframes), 70% of the respondents noted a “positive influence”, and 17% indicated “extremely positive influence”.
 - Relative to the client’s budget (Project completed within the clients approved budget), 70% of the respondents noted a “positive influence”, and 13% indicated “extremely positive influence”.
 - With regards to clients quality (Project completed to the clients required quality and standards), 74% of the respondents noted a “positive influence”, and 22% indicated “no influence”.

- Two of the clients success criteria, which the groups rated extremely high, was:
 - “Satisfied Stakeholders/Client” – 87% “positive influence”
 - “Benefits to the clients project personnel” – 83% “positive influence”

(4.3.2.4 Influence on the contractor success criteria – continues on page 85)

4.3.2.4 Influence on the contractor success criteria



Contractor - Success Criteria		1 Extremely positive influence	2 Positive influence	3 No influence	4 Negative influence	5 Extremely negative influence	6 Unsure	Total
A	Total of client feedback	9	36	11	3	0	1	60
B	Total of contractor feedback	9	40	11	0	0	0	60
C	Total of consultant feedback	17	128	65	2	0	13	225
D	Total of all feedback on contractor critical success criteria	35	204	87	5	0	14	345
Percentage of feedback on contractor critical success criteria		10.1%	59.1%	25.2%	1.4%	0.0%	4.1%	100%

Client								Contractor								Consultant							
1	2	3	4	5	6	Total		1	2	3	4	5	6	Total		1	2	3	4	5	6	Total	
9	36	11	3	0	1	60		9	40	11	0	0	0	60		17	128	65	2	0	13	225	
15%	60%	18%	5%	0%	2%	100%		15%	67%	18%	0%	0%	0%	100%		8%	57%	29%	1%	0%	6%	100%	

		Mean	Mode	Range	Std. Dev.
A	Client feedback	2.2	2	5	0.88
B	Contractor feedback	2.03	2	2	0.58
C	Consultant feedback	2.46	2	5	1.06
D	Combined feedback	2.34	2	5	0.97

Figure 17 - Contractor Success Criteria dash-board

From the dash-board (Figure 17) related to the combined influence of Project Management on the contractor's project success criteria, the following can be noted:

In the majority of cases the feedback indicates that Project Managers positively influenced the success criteria of the contractor.

Combined role-player feedback:

- Stated that 59.1% indicated a combined "positive influence"
- Indicated a 10.1% combined "extremely positive influence"
- The combined "Negative influence" of the role-players was 1.4%.
- The combined "Extremely negative influence" of the role-players was 0%.
- Identified 25.2% of the feedback indicated that Project Managers have "no influence" on the contractor's success criteria, with consultants individually noting the highest "no Influence" feedback with 29%.

Individual group feedback:

- The highest "negative influence" percentage was noted from the client group, with 5%.
- All three groups which make up the role-players, individually indicated a mostly positive influence, with:
 - The client and contractor group both scoring the highest with 15% indicating an "extremely positive influence", and
 - The contractor group scoring the highest with 67% indicating a "positive influence".

The combined and individual feedback reflected a mode of 2 ("positive influence") and this correlates with the 59% indicating a combined "positive influence" and the mean being closer to the "positive influence" than to "no influence" (mean = 2.34).

The table below (Table 35) indicates the combined feedback showing the influence an appointed Project Manager has on the outcomes per contractor project success criteria as noted in the interview questionnaire.

Table 35 - Contractor Success Criteria feedback

	Contractor - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure	Totals
1	Meeting Clients Strategic organisational objectives	17%	61%	13%	4%	0%	4%	100%
		4	14	3	1	0	1	23
2	Contractors Profit (Realisation of contractors profit potential)	0%	52%	35%	4%	0%	9%	100%
		0	12	8	1	0	2	23
3	All Team Members Satisfied (Satisfaction of all team members involved)	0%	83%	13%	0%	0%	4%	100%
		0	19	3	0	0	1	23
4	Repeat Work (Re-appointment of contractor due to past performance)	17%	65%	13%	0%	0%	4%	100%
		4	15	3	0	0	1	23
5	Contractors Safety (Safety of work undertaken in general)	17%	43%	30%	4%	0%	4%	100%
		4	10	7	1	0	1	23
6	Contractors Market Share (Potential of increase of contractors market share)	9%	43%	39%	0%	0%	9%	100%
		2	10	9	0	0	2	23
7	Quality (project completed to the required quality)	9%	65%	22%	0%	0%	4%	100%
		2	15	5	0	0	1	23
8	Satisfy Stakeholders/Client (Satisfaction with end product)	26%	61%	9%	0%	0%	4%	100%
		6	14	2	0	0	1	23
9	Contractors Reputation (Reputation of the contractor)	4%	70%	22%	0%	0%	4%	100%
		1	16	5	0	0	1	23
10	Skill Training (Enhanced skills of contractors personnel involved)	0%	35%	61%	4%	0%	0%	100%
		0	8	14	1	0	0	23
11	Benefits to contractors project personnel (Benefits to those involved)	0%	61%	39%	0%	0%	0%	100%
		0	14	9	0	0	0	23
12	Absence of legal Claims	9%	74%	13%	0%	0%	4%	100%
		2	17	3	0	0	1	23
13	Successful commissioning (Commissioning of the constructed works)	22%	70%	9%	0%	0%	0%	100%
		5	16	2	0	0	0	23
14	Contractors Time/Schedule (Project completed within the given timeframes)	22%	57%	17%	0%	0%	4%	100%
		5	13	4	0	0	1	23
15	Contractors Budget (project completed within the contractors budget)	0%	48%	43%	4%	0%	4%	100%
		0	11	10	1	0	1	23
	Average	10.1%	59.1%	25.2%	1.4%	0.0%	4.1%	

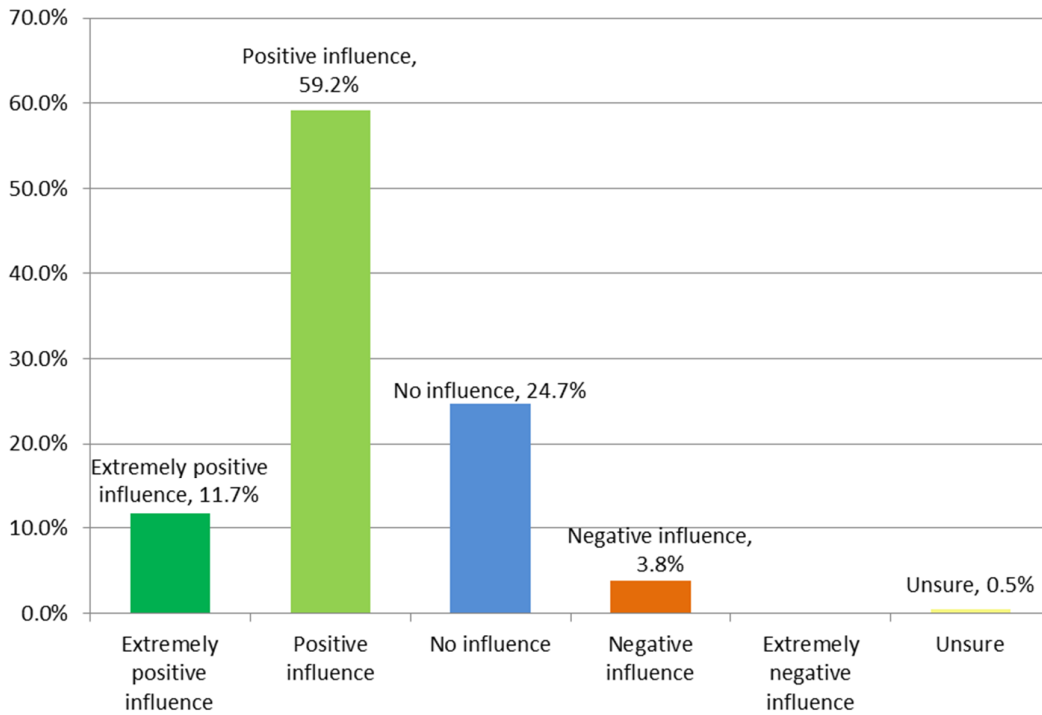
The following can be noted from the above:

- The “negative influence” was noted in relation to the following feedback: “Meeting clients strategic organisational goals” (4%); “Contractors profit” (4%); “Contractors safety” (Safety of work undertaken in general) (4%); “Skill training” (4%); “Contractors budget” (4%)
- None of the success criterion was rated as Project Management having an “extremely negative influence”.
- The highest “no influence” was indicated for “Skill training” at 61%.
- Notably the amount of “unsure” answers given was low, at the highest being with regards to the following:
 - “Contractors profit” (9%)
 - “Contractors market share” (9%)

- The contractor's success criterion, "All team members satisfied", scored the highest at 83% for Project Managers having a "positive influence".
- The highest feedback for "extremely positive influence" was for "Satisfy stakeholders", at 26%.

(4.3.2.5 Influence on the consultant success criteria – continues on page 89)

4.3.2.5 Influence on the consultant success criteria



Consultant - Success Criteria		1 Extremely positive influence	2 Positive influence	3 No influence	4 Negative influence	5 Extremely negative influence	6 Unsure	Total
A	Total of client feedback	1	43	18	1	0	1	64
B	Total of contractor feedback	6	46	12	0	0	0	64
C	Total of consultant feedback	36	129	61	13	0	1	240
D	Total of all feedback on consultant critical success criteria	43	218	91	14	0	2	368
Percentage of feedback on consultant critical success criteria		11.7%	59.2%	24.7%	3.8%	0.0%	0.5%	100%

Client							Contractor						Consultant							
1	2	3	4	5	6	Total	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total
1	43	18	1	0	1	64	6	46	12	0	0	0	64	36	129	61	13	0	1	240
2%	67%	28%	2%	0%	2%	100%	9%	72%	19%	0%	0%	0%	100%	15%	54%	25%	5%	0%	0%	100%

	Mean	Mode	Range	Std. Dev.
A Client feedback	2.36	2	5	0.70
B Contractor feedback	2.36	2	2	0.53
C Consultant feedback	2.36	2	5	0.80
D Combined feedback	2.38	2	5	0.74

Figure 18 - Consultant Success Criteria dash-board

The following can be shown from the dash-board (Figure 18) related to the combined influence of Project Management on the consultant's project success criteria:

Combined role-player feedback:

- Notes a 59.2% combined "positive influence"
- Indicated a 11.7% combined "extremely positive influence"
- The combined "negative influence" of the role-player group was 3.8%.
- The combined "Extremely negative influence" of the role-player group was again 0%.
- 24.7% of the combined feedback indicated that Project Managers have "no influence" on the consultant's success criteria, with clients individually noting the highest "no Influence" feedback with 28%.

Individual group feedback:

- The highest "negative influence" feedback was scored by the consultant group, with 5%.
- The combined "extremely negative influence" of the role-player group was again 0%.
- The majority of the three groups which make up the role-players individually indicated a positive influence, with:
 - The consultant group scoring the highest with 15% indicating an "extremely positive influence", and
 - The contractor group scoring the highest with 72% indicating a "positive influence". Again the range of (2) and standard deviation (0.53) of the contractor's feedback indicates a narrow dispersion of answers.

The mode for the combined, client, contractor and consultant groups was 2 ("positive influence") and relates to the percentage of 59.2% indicating a combined "positive influence". The combined feedbacks answers were closely distributed around the mean of 2.38 (standard deviation = 0.74).

The table below (Table 36) depicts the combined feedback indicating the influence an appointed Project Manager has on the outcomes per consultant project success criteria as noted in the interview questionnaire.

Table 36 - Consultants Success Criteria feedback

	Consultant - Success Criteria	Extremely positive influence	Positive influence	No influence	Negative influence	Extremely negative influence	Unsure	Totals
1	Consultants Market Share (Potential of increase of consultants market share)	0%	52%	39%	4%	0%	4%	100%
		0	12	9	1	0	1	23
2	Consultants Reputation (Reputation of the consultant)	9%	61%	30%	0%	0%	0%	100%
		2	14	7	0	0	0	23
3	Skill Training (Enhanced skills of consultants personnel involved)	0%	48%	48%	0%	0%	4%	100%
		0	11	11	0	0	1	23
4	Consultants Profit (Realisation of consultants profit potential)	9%	43%	30%	17%	0%	0%	100%
		2	10	7	4	0	0	23
5	All Team Members Satisfied (Satisfaction of all team members involved)	13%	70%	9%	9%	0%	0%	100%
		3	16	2	2	0	0	23
6	Repeat Work for consultant (Re-appointment of consultant due to past performance)	17%	57%	26%	0%	0%	0%	100%
		4	13	6	0	0	0	23
7	Safety (Safety of work undertaken in general)	13%	26%	57%	4%	0%	0%	100%
		3	6	13	1	0	0	23
8	Benefits to consultants project personnel (Benefits to those involved)	4%	65%	30%	0%	0%	0%	100%
		1	15	7	0	0	0	23
9	Absence of legal Claims	9%	65%	26%	0%	0%	0%	100%
		2	15	6	0	0	0	23
10	Successful commissioning (Commissioning of the constructed works)	13%	78%	9%	0%	0%	0%	100%
		3	18	2	0	0	0	23
11	Functional Requirements (Functional requirements of the end product met)	22%	57%	22%	0%	0%	0%	100%
		5	13	5	0	0	0	23
12	Consultants Time/Schedule (Project completed within the given timeframes)	26%	74%	0%	0%	0%	0%	100%
		6	17	0	0	0	0	23
13	Consultants Budget (project completed within the consultants budget)	0%	48%	26%	26%	0%	0%	100%
		0	11	6	6	0	0	23
14	Quality (project completed to the required quality)	9%	70%	22%	0%	0%	0%	100%
		2	16	5	0	0	0	23
15	Satisfy Stakeholders/Client (Satisfaction with end product)	22%	74%	4%	0%	0%	0%	100%
		5	17	1	0	0	0	23
16	Meeting Clients Strategic organisational objectives	22%	61%	17%	0%	0%	0%	100%
		5	14	4	0	0	0	23
	Average	12%	59%	25%	4%	0%	1%	

The comments below can be noted:

- The highest “negative influence” was noted in relation to “Consultants budget” (26%).
- None of the success criterion was rated as Project Management having an “extremely negative influence”.
- The highest “no influence” was indicated for “Safety of work undertaken” at 57%.
- The amount of “unsure” answers given was low. The only success criteria which got “unsure” feedback was:
 - “Consultants market share” (4%)
 - “Skills training” (4%)
- “Successful commissioning” scored the highest at 78% for Project Managers having a “positive influence”. Other criterion which are also notably high are:

- “All team members satisfied” (70%)
- “Consultants Time/Schedule” (74%)
- “Quality’ (project completed to the required quality) (70%)
- “Satisfy stakeholders/client” (74%)
- The highest feedback for “extremely positive influence” was for “Consultants Time/Schedule”, at 26%.

4.3.2.6 Question 10 - Agreement with success criteria listed

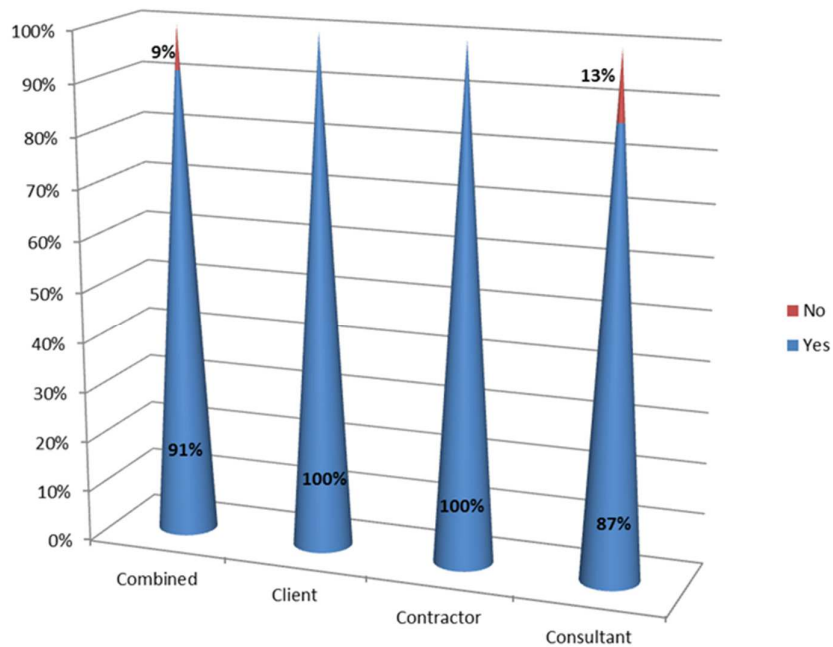


Figure 19 - Agreement with success criteria list

Figure 19 indicates that the combined results from the role-players showed that 9% of the respondents disagreed that the list of success criteria, applicable to them, could be used as a measure of success relative to their involvement.

Looking at the individual feedback from each role-player group, Figure 19 also shows that the combined result of 9% is made up of consultants and that none of the other two role-player groups disagreed with their respective lists of success criteria.

4.3.2.7 Question 11 - Exclusions to list of success criteria

As noted before, the only group which noted changes to the list of criteria was the consultants. In this group, three respondents noted that the following could be excluded from their list of success criteria:

- Respondent (1):
 - “Consultants Reputation”
 - “Skill Training”
 - “Consultants Profit”
 - “Benefits to consultants project personnel”
 - “Absence of legal claims”
- Respondent (2):
 - “Skill Training”
- Respondent (3):
 - “Consultants reputation”
 - “Skill Training”

It can be noted that all three of the consultants indicated that “Skill training” can be excluded and two of the consultants noted that “Consultants reputation” can be excluded.

4.3.2.8 Question 12 - Additions to list of success criteria

In connection with additions to the list of success criteria, four respondents noted criteria to be added. These criteria where:

- Respondent (1) - contractor:
 - “Successful dissemination of information”
 - “Successful coordination of the design”
 - “Timely payment by the client”
 - “Timely and fair arbitration/decisions on quality and claims’
 - “Client management”
- Respondent (2) - consultant:
 - “Proper coordination of project”
- Respondent (3) - consultant:

- “Coordination of design”
- Respondent (4) - client:
 - “Environmental compliance”
 - “Innovation of design”
 - “Cost effective design”

It can be seen from the above that:

- Coordination of designs and projects are mentioned.
- Specific group related issues are mentioned:
 - The respondent from the client group indicated environmental, innovation in design and value in relation to the design.
 - The contractor group respondent noted payment, claims and client management issues.

4.3.3 Section 3 – General Questions analysis

4.3.3.1 Question 13 - Improvement of influence on project success criteria

All the feedback with regards to PM’s improving their influence on project success can be summarised as follows (Table 19, page 59):

- Technical aspects:
 - Experienced
 - Contractual Background
 - Understanding scope of the work
 - Hands-on with contractor
 - Knowledge of drawings and details
 - Sector related Project Management is advisable
- People skill aspects:
 - Be professional
 - Understanding of skilled and un-skilled workforce
 - Good communication/interface – internally and externally of the project
 - Team coordination and building
 - Making a positive impact
 - Goal setting

- Management aspects:
 - Decision making
 - Effectiveness
 - Pro-active management
 - Responsibility and project ownership
 - Leading
 - Look at and manage the broad objectives
 - Client management
- Budget and Schedule aspects:
 - Set-up, monitor and control the program
 - Manage and communicate budget issues to all involved

4.3.3.2 Question 14 - Project Management’s legitimate or integral part in the industry

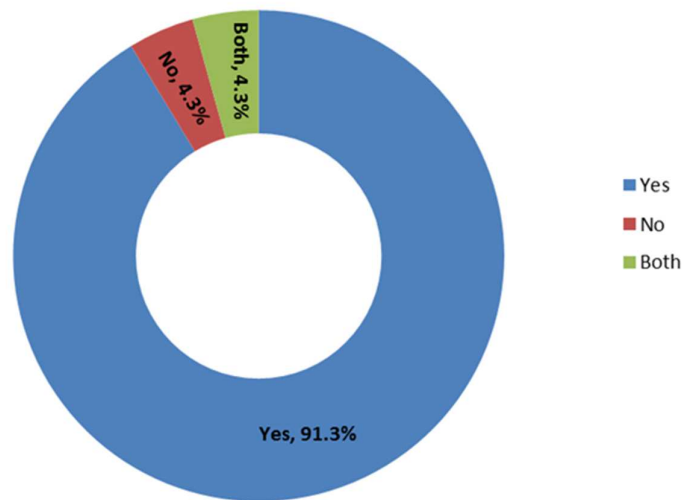


Figure 20 - PM legitimate or integral part

Figure 20 graphically shows that 91.3% of all the respondents view Project Managers as being a legitimate or integral part of the South African Construction industry.

Table 37 - PM legitimate or integral part

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
21	1	1	23	4	0	0	4	4	0	0	4	13	1	1	15
91.3%	4.3%	4.3%	100%	100%	0%	0%	100%	100%	0%	0%	100%	87%	7%	7%	100%

Table 37 above indicates that 100% of the client and contractor groups stated that PM's were a legitimate or integral part of the South African construction industry. From the consultant group, 7% noted that PM's are not a legitimate or integral part of the industry and a further 7% of the same group stated a mixed answer (Yes/No).

Comments in relation to PM's being a legitimate or integral part of the South African Construction industry (Table 21, page 60) can be summarised as follows:

- Management aspects:
 - There must be a single party or person driving/leading the project
 - The PM has a large part to play on a project
- Team focus:
 - The PM gives other consultants the ability to focus on their core service.
- Project size and complexity aspects:
 - The size of a project should justify the appointment of a PM.
 - PM's are required on complex multidisciplinary projects where coordination and integration is critical
- General aspects:
 - PM is a legislated profession.
 - Poor PM has given PM a bad name.

4.3.3.3 Question 15 - Probability of success when appointing a Project Manager

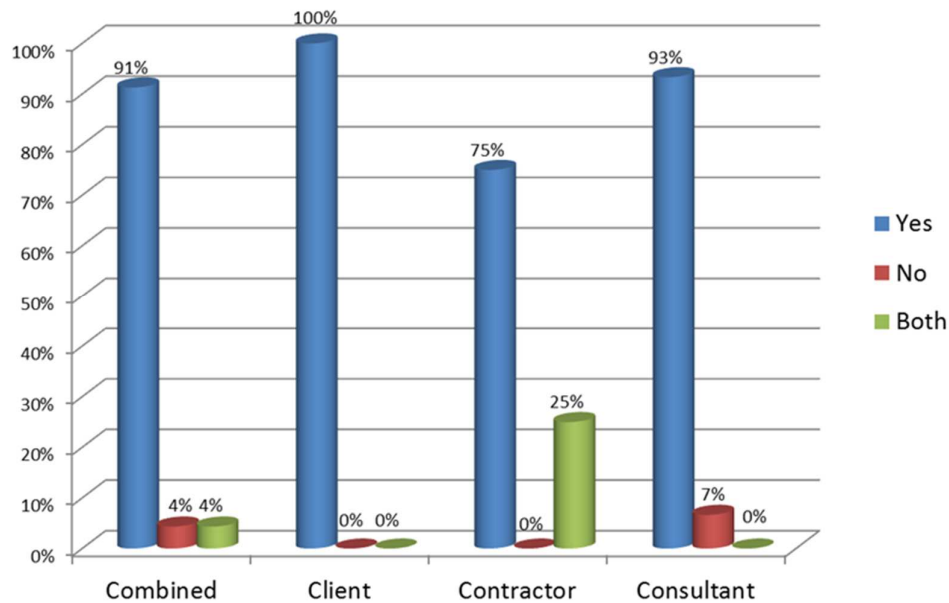


Figure 21 - Probability of success when appointing a PM

Table 38 - Probability of success when appointing a PM

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
21	1	1	23	4	0	0	4	3	0	1	4	14	1	0	15
91%	4%	4%	100%	100%	0%	0%	100%	75%	0%	25%	100%	93%	7%	0%	100%

The Table 38 and Figure 21 above indicate the following:

- 91% of the respondent's feedback was "Yes" with regard to the appointment of a PM increasing the probability of a project being successful.
- Of the three groups, 100% of the client group stated "Yes" to the question.
- 25% of contractors had a mixed response to the question.

The comments relating to the above (Table 23, page 61) were summarised as follows:

- Management aspects:
 - Single party or person driving or leading the project
 - PM creates one controlling body and point of contact

- Team focus:
 - Other consultants can focus on designs/technical issues
 - PM ensures that there is no shared responsibility of other consultants
- Project size and complexity aspects:
 - The size of a project should justify the appointment of a PM.
 - PM's required only on multidisciplinary projects
- General aspects:
 - There is no guarantee that the design team will perform
 - PM's can assist in having a less confrontational and fair contract

4.3.3.4 Question 16 - Project Management success when fulfilled by a stand-alone Project Manager

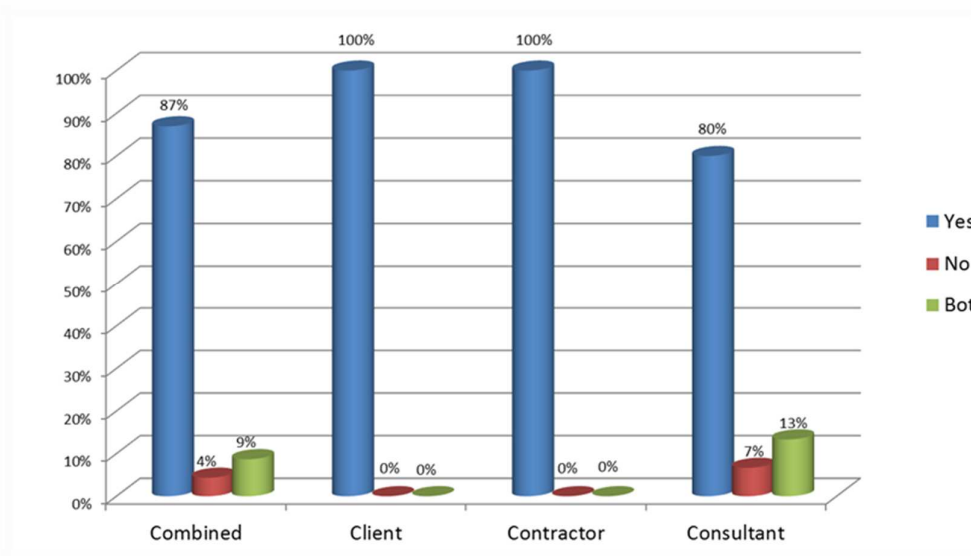


Figure 22 - PM success when fulfilled by a stand-alone PM

Table 39 - PM success when fulfilled by a stand-alone PM

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
20	1	2	23	4	0	0	4	4	0	0	4	12	1	2	15
87%	4%	9%	100%	100%	0%	0%	100%	100%	0%	0%	100%	80%	7%	13%	100%

Figure 22 indicates that 87% of respondents noted that Project Management is more successful when fulfilled by a stand-alone Project Manager. Looking further at each group, it can be seen that:

- 80% of Consultants noted that Project Management is more successful when fulfilled by a stand-alone Project Manager.
- 100% of Clients and Contractors stated that Project Management is more successful when fulfilled by a stand-alone Project Manager.

The feedback of the eleven respondents (Table 25, page 62) which gave an explanation with regards to Project Management function being fulfilled by a Project Manager can be summarised as being:

- Management aspects:
 - The PM should not be influenced by any consultant
 - The PM function should be done throughout project life cycle
 - Proper communication is required to all parties
 - Other consultants have a lack of management training
 - The PM represents the client
 - The QS or Architect can do the work as well.
- Team focus:
 - PM cannot be a part time section of work or responsibility
 - Other consultants can focus on designs and specialised work.
- Project size and complexity aspects:
 - The appointment of a PM should be project size related.

4.3.3.5 Question 17 – Respondents’ feedback on future response to a Project Manager appointment

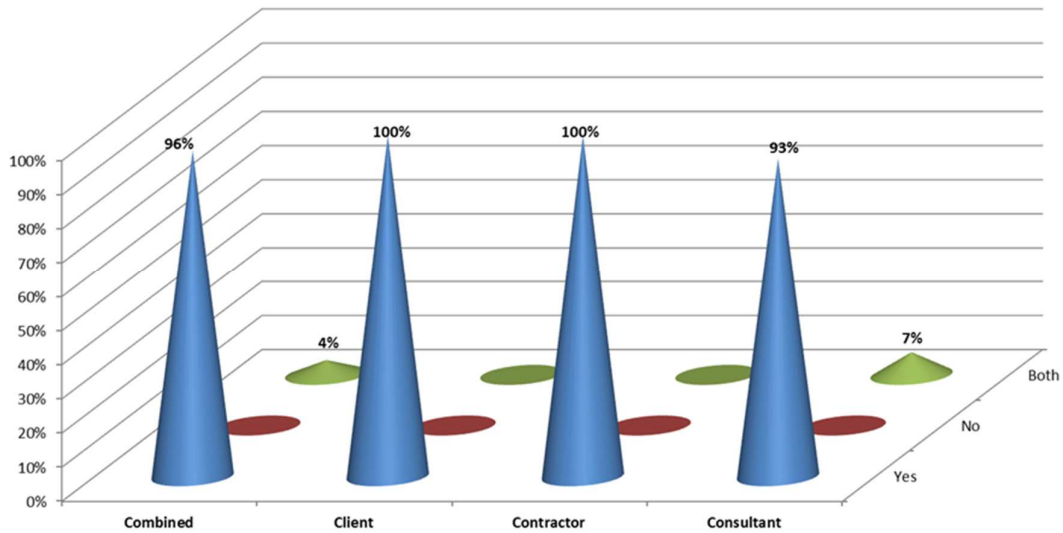


Figure 23 - Future response to PM appointments

Table 40 - Future response to PM appointments

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Positive	Negative	0	Total	Positive	Negative	Both	Total
22	0	1	23	4	0	0	4	4	0	0	4	14	0	1	15
96%	0%	4%	100%	100%	0%	0%	100%	100%	0%	0%	100%	93%	0%	7%	100%

Figure 23 indicates that 96% of respondents would be positive about the appointment of a Project Manager on their next construction project. As seen above (Table 40), 7% of Consultants indicated a mixed response to the question.

4.3.3.6 Question 18 - Project Management – Skill or Profession

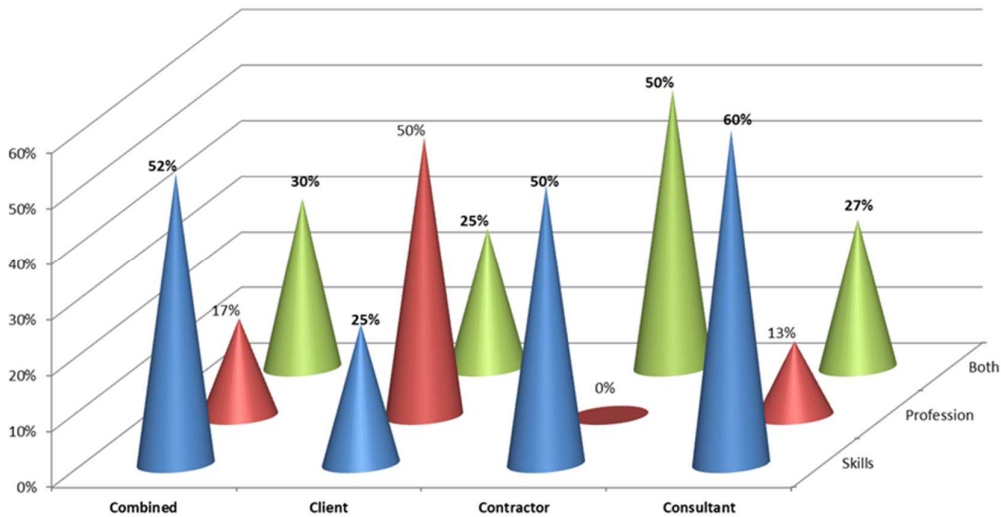


Figure 24 - Skill or Profession

Table 41 - Skill or Profession

Combined				Client				Contractor				Consultant			
Skills	Profession	Both	Total	Skills	Profession	Both	Total	Skills	Profession	Both	Total	Skills	Profession	Both	Total
12	4	7	23	1	2	1	4	2	0	2	4	9	2	4	15
52%	17%	30%	100%	25%	50%	25%	100%	50%	0%	50%	100%	60%	13%	27%	100%

The following can be noted with regards to Figure 24:

- 52% of the combined group noted that Project Management is related to a skill and not a profession
- The client group indicated that Project Management relates more to a profession (50%)
- The contractor group was divided over the question with 50% indicating that it is a skill and 50% noting that it is both a skill and a profession.
- 60% of the consultant group indicated that Project Management is a skill.

Nineteen of the respondents gave feedback in relation to their answers (Table 28, page 64). These can be summarised as being:

- Any or all of the consultants can be the PM, if they are skilled managers.

- Definite PM skills are required to manage a project
- A broad range of skills are required to manage a project
 - Personal/People skills
 - Technical skills
- Industry experience, knowledge and training is important
- Not anyone can be a PM
- Skill can suffice on small projects. On large projects, professional PM is required.
- PM is both a profession and a skill. It is a combination.

4.3.3.7 Question 19 - Other consultants' time to fulfil the Project Manager's role

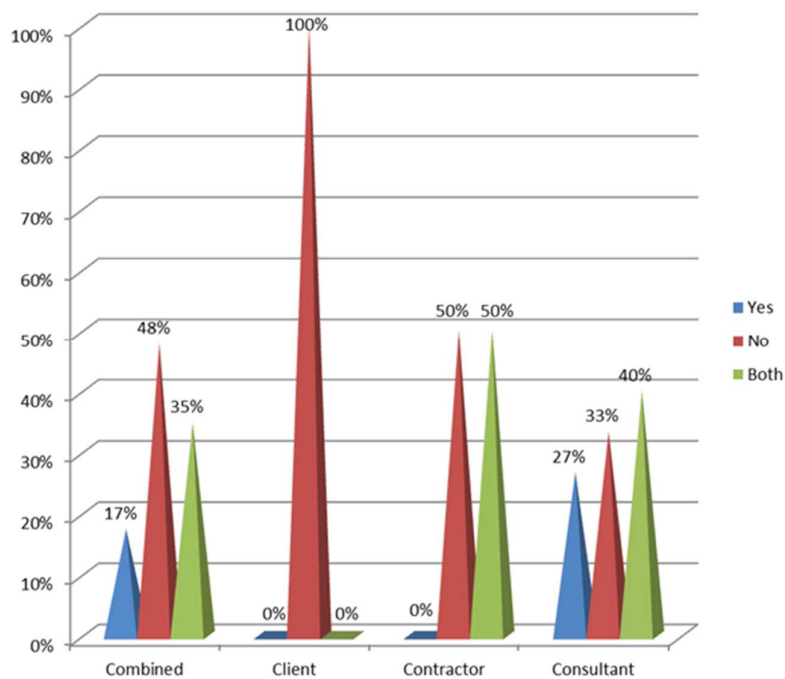


Figure 25 - Time to fulfil PM role

Table 42 - Time to fulfil PM role

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
4	11	8	23	0	4	0	4	0	2	2	4	4	5	6	15
17%	48%	35%	100%	0%	100%	0%	100%	0%	50%	50%	100%	27%	33%	40%	100%

Figure 25 indicates that 48% of the combined respondents noted that other consultants don't have the time during a project to still fulfil the role of the Project Manager. There was 35% of the respondents that noted a mixed response (Yes/No).

In connection with the individual group feedback, the following can be noted:

- 100% of clients stated that they perceive other consultants will not be able to fulfil the role of the Project Manager.
- Contractors were divided on their feedback (No, Both = 50%).
- 40% of consultants indicated both a Yes and No answer.

Nineteen of the respondents gave an explanation for their answer (Table 30, page 65). These can be summarised as follows:

- Size and Complexity aspects:
 - The size, complexity and time constraints of a project is a major determinant of other consultants being able to fulfil the PM duties
- General aspects:
 - PM is a full time function
 - Most consultants cannot fulfil both technical and PM function on the same project
 - Depends on the individuals skill

4.3.3.8 Question 20 - Critical skills and attributes

All twenty three of the respondents added comment under this question. The feedback can be summarised as follows (Table 43):

Table 43 - Skills and attributes

People Skills and Personal Attributes:	<input type="checkbox"/> Communication / Ability to express themselves <input type="checkbox"/> Objectiveness <input type="checkbox"/> Fairness/impartiality <input type="checkbox"/> People skills <input type="checkbox"/> Handle stress / remain calm <input type="checkbox"/> Experience <input type="checkbox"/> Clear vision, direction, guidance, instruction <input type="checkbox"/> Motivate others <input type="checkbox"/> Mature, not emotional <input type="checkbox"/> Self-confidence <input type="checkbox"/> Good listener <input type="checkbox"/> Diplomacy <input type="checkbox"/> Helpful <input type="checkbox"/> Enforce authority <input type="checkbox"/> Team player <input type="checkbox"/> Diligent <input type="checkbox"/> Reliable <input type="checkbox"/> Patient <input type="checkbox"/> Good perception/ assess situations <input type="checkbox"/> Hold others accountable <input type="checkbox"/> Approachable <input type="checkbox"/> Perfectionist - Attention to detail <input type="checkbox"/> Ethical <input type="checkbox"/> Integrity <input type="checkbox"/> Honest <input type="checkbox"/> Trustworthy <input type="checkbox"/> Think on their feet <input type="checkbox"/> All-rounder <input type="checkbox"/> Disciplined
Management Skills and Attributes:	<input type="checkbox"/> Assertive <input type="checkbox"/> Leadership - Good leader, team leader, Not a dictator <input type="checkbox"/> Lateral thinking <input type="checkbox"/> Financial knowledge <input type="checkbox"/> Negotiation ability <input type="checkbox"/> Decision making <input type="checkbox"/> Ability to drive a contract <input type="checkbox"/> Good admin skills <input type="checkbox"/> Good PM background, <input type="checkbox"/> Knowledge of PMBOK <input type="checkbox"/> Add value <input type="checkbox"/> Logical <input type="checkbox"/> Firm and strong <input type="checkbox"/> Writing skills
Technical Skills and Attributes:	<input type="checkbox"/> Construction knowledge <input type="checkbox"/> Experienced <input type="checkbox"/> Understand other disciplines' challenges <input type="checkbox"/> Planning <input type="checkbox"/> Programming/time management <input type="checkbox"/> Understanding scope of work <input type="checkbox"/> Gather info

4.3.3.9 Question 21 - Appointment of Project Manager – project size/value related

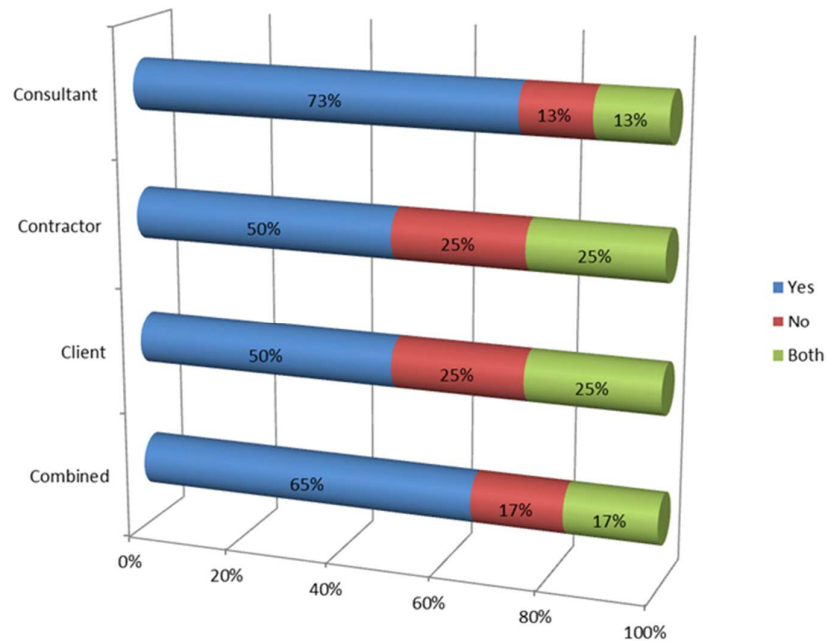


Figure 26 - Size and Value related

Table 44 - Size and Value related

Combined				Client				Contractor				Consultant			
Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total	Yes	No	Both	Total
15	4	4	23	2	1	1	4	2	1	1	4	11	2	2	15
65%	17%	17%	100%	50%	25%	25%	100%	50%	25%	25%	100%	73%	13%	13%	100%

Figure 26 shows that:

- The majority (65%) of all the respondents indicated that they do feel that the need for the appointment of a Project Manager is in direct relation to the size and value of a project.
- Clients and contractors in their groups (50%) also felt that the size and value relates to the need for a Project Manager.
- The majority of Consultants (73%) noted that they feel that the need for the appointment of a Project Manager is in direct relation to the size and value of a project.

Fourteen respondents commented on their choice of answer (Table 33, page 67).

The comments are summarised below:

- Size/Value:
 - Small projects, in general, do not require a PM
 - Large projects requires a PM
 - Small project can be managed in groups
- Complexity:
 - Complexity is a good indicator of the need for a PM
 - Multidisciplinary project requires a PM
- General:
 - All project needs to be managed. A decision needs to be made on who will manage it.

4.4 Interpretation - Introduction

The interpretation of the above analysis follows in the sections below. The interpretation will again follow in the same sequence as the Sections in the questionnaire, but the relevant hypothesis will also be noted, towards which questions in the interview were directed.

At the end of the chapter, the various hypotheses will be tested in relation to the interpretation of the analysis.

4.4.1 Section 1 – Demographic Profile interpretation

As stated before, the demographic profile analysis would aim to reveal the relevant experience and applicable background of the respondent group to be able to add value and substance to the research topic and the findings.

From the analysis of the interview feedback, the following can be deduced:

- The age group information combined with the experience gives a good indication of the potential value of input gained from the respondents.
 - The vast majority of the respondents were aged above forty (48% between forty and fifty, and 35 % over fifty)
 - The majority of the respondents interviewed had more than 20 years' experience in the industry (65%). The interpretation can go further to note that the results show that the respondents can relate their feedback to a period when there were no professionally registered Project Managers in the industry.
- All respondents had some form of formal qualification with most having a bachelors degree.
- The entire group's statuses within their organisations comprised of Managing directors, Directors/Senior Executives, Managers, Associates and Senior Staff. The group's status can be viewed as being persons with a high level of status in their organisations.

In summary, the group of respondents can be viewed to be well experienced/educated in the construction industry. The group is mainly made up of individuals from the higher status groups in their organisations and involved locally

on construction projects, ranging from R 5 million to more than R 150 million, where Project Managers have been appointed.

4.4.2 Section 2 – Critical Success criteria interpretation

Section 2 was set up to deal mainly with the testing of Hypothesis 1, which relates to the positive influence of Project Management on the construction industry role-players, over the past ten years, with regard to their respective and combined success criteria.

From the analysis done on the data, the following can be interpreted:

- Combined influence on the role-players:
 - The majority of the feedback noted that Project Management has positively influenced the industry role-players over the past 10 years (60.9% positive influence and 11.9% extremely positive influence).
 - The percentage indicated for “no-influence” (21.1%) could also be interpreted to be related to sections of the success criteria where role-players either do not require the Project Manager to have an influence or areas which could be beyond the Project Managers’ sphere of influence. Project Managers should investigate and decide on which criteria they need to or can have an influence on.

- Influence on the client success criteria:
 - Relative to the other two group’s success criteria feedback, the positive influence on the client’s success criteria was rated to be the highest (Client 64.3%, Contractor 59.1%, Consultant 59% - Tables 34-36, pages 83, 87, 91). This positive influence feedback is reinforced by the related criteria feedback for the “Iron Triangle” (Weaver & Bourne, 2009) success criteria of time, budget and quality. In all three of these individual success criteria for the client, the percentages were high (70% and higher – Table 34, page 83).
 - The “no-influence” feedback on the client success criteria is also the lowest (13%) of the three role-player group success criteria inputs (Tables 34-36, pages 83, 87, 91).

- The above two points relating to the clients success criteria can be perceived as an indication that Project Managers have the most positive influence on the clients success criteria.
 - From the contractor’s group feedback on the Project Managers influence on the client’s success criteria, it can be seen that the vast majority of the role-players views the influence of the PM on the client as positive (85% “positive influence” and 10% “extremely positive influence” – Figure 16, page 81). Contractors in particular seem to find the influence of a PM on the client very positive.
 - Consultants noted the highest “no influence” feedback (16% - Figure 16, page 81). This can be interpreted to be linked to specialist knowledge of the limits of influence and control which a Project Manager can exert on a project, or it can be allied to some consultants being in competition with Project Managers for certain sections of professional services rendered to clients (Morton, 2002, pp. 97, 111, 114).
- Influence on the contractors success criteria:
 - The combined feedback from role-players showed that the influence on the contractor’s success criteria was mostly positive (59.1% “positive influence” and 10.1% “extremely positive influence” – Figure 17, page 85).
 - The combined role-players indicated a 25.2% “no influence” feedback (Figure 17, page 85) which could again be perceived as either areas which the role-players view Project Managers to have no role to play or those criteria being outside of the Project Managers direct influence. Consultants (29%) were the highest contributor to this figure, and the perception could be that consultants view Project Managers as only having limited influence on the contractor’s success criteria or Project Managers not fulfilling their roles properly. In this case, the group’s highest score for “no influence” was for “skills training” (61% - Table 35, page 87). This could definitely be an area where Project Managers currently have little or no perceived influence.
 - The contractor group of respondents indicated the highest positive response (67% “positive influence” and 15% “extremely positive influence”

– Figure 17, page 85). This could be interpreted to be a positive aspect with regards to the role that Project Managers play in relation to the mediation; objectivity and fairness which is required during a construction project (refer to General aspects comments made by respondents in connection with question 15 – page 98).

- Influence on the consultants success criteria:

- Again, the combined overall positive feedback (59.2% “positive influence” and 11.7% “extremely positive influence”), can be interpreted to indicate a majority positive influence of Project Managers on the consultants success criteria. Consultants individually scored the highest “extremely positive influence” percentage (15% - Figure 18, page 89). This indicates that Project Managers are in certain areas influencing consultant’s success criteria extremely positively and the group recognises this.
- The highest negative influence feedback came from the consultant group (5% - Figure 18, page 85), and could relate to the following:
 - The Project Manager requiring more input from the consultants than what they would have liked to have done. This is in relation to the high percentage of negative influence on the “Consultants Budget” (26% - Table 36, page 91).
- In paradox to the above, the role-players indicated that the highest “extremely positive influence” feedback was for “Consultants Time/Schedule” (26% - Table 36, page 91). This could be interpreted that the Project Managers positively influenced the consultants in achieving their time related goals.
- The vast majority of Contractors were very positive in their feedback (72% “positive influence” and 9% “extremely positive influence” – Figure 18, page 89), and it can be perceived as the value they see in the Project Manager influencing the consultants in a positive manner.
- With regard to the “no influence” feedback, the client group in this instance indicated the highest percentage (28% - Figure 18, page 89) feedback. This could be interpreted to show the client groups focus of required influence not being aimed at the consultants, but more to the contractor. It

can also be interpreted as an indicator that clients view other professionals as having the general ability to take responsibility of sections of a project which the Project Manager does not have to influence or cannot influence at all (example, Consultants profit and budget).

- Agreement, exclusions and additions with regards to the list of success criteria:
 - With the results indicating 91% of the respondents agreeing that their respective sets of success criteria are applicable to them, it can be observed that the list of criteria was sufficient (Figure 19, page 92).
 - Further to the above observation, only respondents from the consultant group disagreed with the list of criteria. It can be seen that the criteria noted for exclusion could seemingly be those on which the Project Manager cannot or will not have an influence (Figure 19, page 92).
 - Additions to the list were interpreted as items which could still relate to items in the respective criteria lists. This could have been clarified if further discussion and refinement of the list was required. In this case, it was not required.

To summarise the above, it can be reasoned that Project Managers have, over the past 10 years, influenced the project success criteria of the construction industry role-players positively. Although some role-player feedback fluctuated slightly, it can be interpreted that the majority positive influence (60.9% - Figure 15, page 79) relates to their respective and combined sets of success criteria. It can also be interpreted that the group agreed with their respective lists of success criteria.

4.4.3 Section 3 - General Questions interpretation

The interview questions in Section 3 were compiled to assist with the testing of Hypothesis 2 and 3.

Hypothesis 2 dealt with the perceived impact and growing influence of Project Management on the future of the construction industry and its role-players. Question 13, 14, 15, 16 and 21 in the interview questionnaire related to Hypothesis 2.

Hypothesis 3 on the other hand, required input on the comprehensive and specific skills, attributes and professional conduct required when fulfilling the Project Management function. Question 18, 19 and 20 solicited feedback for this data.

For ease of understanding, the interpretation of the analysed information will be done separately for Hypothesis 2 and 3.

Interpretation of the analysis of the data linked to Hypothesis 2 can be summarised as follows:

- From the supporting analysis results below and comments made by the respondents, it can be noted that role-players observed that Project Management was making an impact on the industry and will have a growing influence on the industry and its role-players.
 - Future improvement of the influence of Project Management on project success criteria of the role-players related to skills in Technical, People, Management, Budgetary and Schedule aspects.
 - The vast majority of respondents (91.3% - Figure 20, page 95) indicated that they experienced and perceived Project Managers to be a legitimate or integral part of the construction industry.
 - The vast majority of respondents (91% - Figure 21, page 97) answered “yes” when requested to give feedback on the question of an appointed Project Manager increasing the probability of a project being more successful.
 - Of the combined group of respondents, 87% (Figure 22, page 98) indicated that the Project Management function is more successful when fulfilled by a standalone Project Manager.
 - Further, 96% (Figure 23, page 100) of the combined group of respondents noted that they would be positive with regard to the appointment of a Project Manager on the next construction project they are involved in.

The interpretation of the analysis of the data related to Hypothesis 3 is indicated below:

- The combined respondents mostly (52% - Figure 24, page 101) noted that Project Management is more related to a specific person’s skill, than to a specific profession. Of the respondents, 30% noted that it is both a skill and profession;

and 17% indicating that it is a profession. This can be interpreted to indicate that the Project Management skills required to manage a project could overshadow the actual requirement to be a professional in the field. In many ways, it can be apparent that the professional registration of the Project Manager or the individual fulfilling the function is not as highly rated as the actual skill behind the individual to successfully manage projects. The explanatory feedback, however, strongly suggests that the skill and profession behind Project Management is a combination.

- From the combined role-player results, it can be observed that the respondents partly stated (48% - Figure 25, page 102) that the Project Management function cannot be fulfilled by other consultants during a project, and should be fulfilled by a stand-alone Project Manager. The number of mixed responses (“yes” and “no” :35% - Figure 25, page 102) and explanation feedback from the respondents can be noted to indicate the fact that a range of other aspects could play a part in the Project Management function being fulfilled by other consultants. These were mainly related to project size and complexity. Interestingly, it can be noted that 100% (Figure 25, page 102) of the client group felt that other consultants cannot fulfil the role.
- All of the respondents contributed towards the identification of an extended list of skills and attributes which a Project Manager should have to be able to positively influence the role-players success criteria (Table 43, page 104). This can be interpreted to mean that a Project Manager must have a vast and extremely broad base of skills to manage a construction project. The interpretation can go further into noting that the skills are as much technical and managerial as they are people skills and personal attributes.

In summarising the above, it can be noted that role-players in the construction industry notice Project Management to be more related to a specific person’s skill than to a specific profession. The respondents only partly (48% - Figure 25, page 102) noted that the Project Management function cannot be fulfilled by other consultants, but the mixed responses (“yes” and “no”: 35% - Figure 25, page 102) indicated that there are other issues to consider when trying to get to finality on who can or cannot fulfil the Project Management function. This could relate to the fact that regulatory boundaries do not prohibit other professions to either perform the role of

the Project Manager or produce relevant documentation which would be part of the duties of a Project Manager. Finally, it can also be stated that a Project Manager should have broad technical skills, managerial skills, people skills and personal attributes related to the function.

4.4.4 Testing the hypothesis

4.4.4.1 Hypothesis 1

Hypothesis 1 stated that Project Management service provision has over the past ten years positively influenced role-players with regard to their respective and combined project success criteria.

If one takes into account the analysed data relating to the majority of positive feedback in relation to both the combined overall results and the individual role-player group results (Figure 15, page 79: 60.9% “positive influence” and 11.9% “extremely positive influence”), on the influence of Project Management, there is sufficient evidence for the hypothesis to be tested. Due to the fact that the respondent groups were from allied or cross disciplinary role-players, as suggested by Kwak and Anbari (2009, p. 436), the results are apparent to be balanced and objective. Furthermore, the findings seem to be in line with the thoughts and conclusions of previous studies and papers which noted:

- Project Management have definite benefits (Steyn, et al., 2003, p. 13)
- Project Management being a means of strategy realisation (du Plessis, et al., 2009, p. 98) (van der Waldt, 2007, p. 253)

Thus, from the feedback received, analysis done and the interpretation made, it can be noted that Project Management has over the past ten years positively influenced the project success criteria of the role-players. This positive influence was noted for the combined and respective success criteria of the industry role-players.

This hypothesis is supported by the findings.

4.4.4.2 Hypothesis 2

The second hypothesis noted that Project Management service provision will have a perceived impact and growing positive influence on the future of the construction

industry and its role-players. The study findings were overwhelmingly positive in relation to the questions of:

- Future improving of the professions influence,
- The Project Manager being a legitimate part of the industry (91.3% - Figure 20, page 95),
- The appointment of the Project Manager increasing probable project success (91% - Figure 21, page 97),
- Project success when the Project Management role is fulfilled by a stand-alone Project Manager (87% - Figure 22, page 98), and
- The feedback on the role-players reaction on subsequent appointment of Project Managers (96% - Figure 23, page 100).

The findings of the interpretation compare to comments made by other authors which indicate:

- The challenges that Project Management faces, can be defined by the professions success (Weaver , 2007 b)
- Companies gain a competitive edge by means of implementing Project Management (Da Vinci Institute of Technology Management and Technology, 2009, p. 3)
- Project Management being one of the fastest growing forms of management in the world (Steyn, et al., 2003, p. 2)
- Project Management will emerge as a profession over time (Weaver, 2007 a, p. 15)

When all the above is taken into context, it can be deduced that, related to the hypothesis, role-players perceive Project Management as making an impact and will have a growing positive influence on the industry.

This hypothesis is supported by the findings.

4.4.4.3 Hypothesis 3

The third hypothesis relates to the fulfilment of the Project Management function in the construction industry requiring a comprehensive and specific set of skills, attributes and professional conduct.

The findings of the interpretation note that:

- Project Management is more related to a specific person's skills than to a specific profession (in this case, the Project Management Profession) (52% - Figure 24, page 101).
- A vast majority (87% - Figure 22, page 98) of role-players felt that the Project Management function cannot be fulfilled by other consultants, but there are project related criteria which should be taken into account when making such a judgment.
- Project Managers will require a vast and wide group of technical, managerial, and people skills, as well as personal attributes to fulfil the Project Management function. The findings relate to the seminar summary by the MPA which notes that a wide array of skills is required by a Project Manager (2008 April, p. 2).

The outcomes above were found to be somewhat uncertain and can be seen to only partially support the third hypothesis.

The uncertainty of the study findings seems to only reinforce the vagueness in the construction industry, especially if the statements from other studies (Jones, 2006; Crafford & Smallwood, 2007; Shaw, 2009) and comments from respondents in this study, are looked at together. No empirical proof can be presented with regards to the question relating to whether professional Project Managers are the only professionals in the current built environment which are sufficiently skilled or professionally qualified to fulfil the Project Management duties. The findings being uncertain, could relate to the fact that the Project Management profession does not have sufficient regulatory protection with regards to the duties performed and documentation they should produce during a project life cycle. This can be seen in the light of other built environment professions having statutory regulations which stipulate that certain duties and documentation can only be performed and produced by those professions (for example Architectural/Engineering specification or drawings and Quantity Surveying Bills of Quantities). The question beckons that if

regulations do not provide Project Management professionals with a clearly defined role which only they are allowed to perform, whether the uncertainty will ever be resolved.

Taking the above comments into account, it can be noted in support for clarification purposes that:

- Respondents indicated a preference (87% - Figure 22, page 98) towards a stand-alone professional which only fulfils the role of the Project Manager and does not over and above the Project Management duties, still aim to fill the role of another professional on a project.
- Project size and complexity seems to be major factors in determining if a defined professional is required to manage a project or not (65% - Figure 26, page 105).

This hypothesis is partially supported by the findings.

4.4.4.4 Chapter Summary

The chapter gave a full interpretation of the analysed results. Following the interpretation, the relevant hypotheses were tested and shown to be either supported or partially supported.

The final chapter will summarise, conclude and give recommendations which resulted from the study.

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

As was stated in the introduction to the study, the logic behind the study (Kwak & Anbari, 2009, p. 436) was based on the perspective that the viewpoint of allied or cross disciplinary role-players could lead to a situation where:

- Project Management influence can be better understood, which would lead to better education and training in the field, and
- Superior project success or performance.

Thus, the study aimed to take input from the three main industry role-players in relation to their prevalence in projects and request feedback from them in connection with certain aspects of Project Management. These aspects were:

- The influence of Project Managers on the role-players' own set of success criteria
- The views on the influence of Project Managers on the other role-players' success criteria
- The impact and growing influence of Project Management
- The comprehensive and specific skills, attributes and professional conduct for Project Managers.

Questionnaires were completed as part of interviews held with respondents. The data gathered from the interviews were analysed in various ways, and finally interpreted.

The interpretation of the study findings led to the hypothesis 1 and 2 being supported. Hypothesis 3 was found to be only partially supported.

5.2 Conclusions

The study found Project Management as a stand-alone profession, has over the past 10 years positively influenced the construction industry role-players. This positive influence was measured against the influence on the respective and combined role-player project success criteria. The findings indicated that:

- Project Management, as a profession, could be seen as a legitimate part of the South African construction industry.
- The industry role-players perceive Project Management as making an impact and having a growing positive influence on the industry going into the future.
- A specific but broad set of skills are required by Project Managers.
- The study findings showed that in general the Project Management function cannot be fulfilled by other consultants, but there are project related criteria which should be considered before making a final judgment. These criteria are mainly related to project size and complexity.
- Project Management is currently perceived to be more related to a specific person's skill than to a specific profession.

5.3 Findings in relation to the research objectives

In relation to the initial study objectives, the following can be noted:

- The respective project success criteria for Clients, Consultants and Contractors were clarified;
- The evaluation of the influence which Project Management has on the project success criteria relative to Clients, Consultants, and Contractors in the construction industry were completed;
- The evaluation of the influence of Project Management service provision over the past 10 years was completed;
- The appraisal of the future impact and influence of Project Management service provision on the industry role-players was concluded;

- The assessment of the legitimate utilisation of Project Management as a stand-alone discipline in the construction industry through the perspectives of the Clients, Consultants and Contractors was established; and
- The clarification and questioning of general perceptions towards Project Management was completed.

In broad terms, the study reached most of its objectives, and can only hope to influence and inform the views of industry role-players on the appointment of a Project Manager in the construction industry.

5.4 Recommendations

It is recommended that construction industry role-players, as a group, realise, accept and recognise the role of a stand-alone Project Manager within the industry. The study has shown findings that note that Project Management as a stand-alone profession adds value and positively influences the industry role-players and could be perceived as a legitimate part of the South African construction industry.

It can also be recommended to the Project Management professional fraternity and professional bodies to find ways of accentuating the value added and formulate procedures to show and document positive influences on construction projects. This will create a platform where Project Management appointments can be defended with logic and justification based on facts and not on mere experience and perception.

Furthermore, the author proposes that the SACPCMP further investigate the options of regulatory guidelines with regard to the duties performed and documentation produced as part of the Project Management functions.

5.5 Future research opportunities

The following topics of research related to this study could be undertaken and seen to enhance the body of knowledge related to Project Management:

- A broad spectrum investigation of the influence and issues related to the Project Management Profession in South Africa and the rest of the African continent.
- The ranking of project success criteria related to the industry role-players.

- Project Management leadership competency development models.
- Restrictions to the appointments of Project Managers.
- Built environment project success strategies.
- Regulatory guidelines and its impact on the Project Management profession.

The following topics were noted during the literature review. These do not have direct relevance to this study, but do indicate a need in the broader Project Management community:

- The impact and influence of ethics on the Project Management professional.
- Project Management Strategies related to the built environment.
- The history of Project Management on the African continent.
- Moving from tendering to partnering – a South African perspective

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Annexure A - Requests for the interview letter

Annexure B – Interview Questionnaires