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AN ENTERPRISE SYSTEMS PERSPECTIVE TO GRC IS IMPLEMENTATION PROCESS

A thesis submitted for the degree of the Doctor of Philosophy

By

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"ἔργου δέ παντός ἤν τις ἄρχηται καλῶς,

καί τάς τελευτάς είκος ἐσϑ' οὕτος ἔχειν"

("if one begins all deeds well,

it is likely that they will end well too")

Sophocles (496 BC-406 BC)

Στην οικογένεια μου,

για την απεριόριστη αγάπη, υποστήριξη,

και συνεχή συμπαράσταση που μου παρείχε όλα αυτά τα χρόνια

This thesis is dedicated to my family,

for their unconditional love, endless support and

constant encouragement during all these years.

ABSTRACT

Governance, Risk and Compliance (GRC) Information Systems (IS) as an integrated technology has been introduced recently to facilitate the demanding operational and financial environment of the enterprises. The implementation process and the adoption of such systems is considered as a significant parameter influencing the success of operational performance and financial governance and could support the competitive advantage practices within the organisations. However, GRC literature is limited regarding the analysis of the implementation and adoption success. Therefore, there is a need for further research and contribution about these systems and more specifically their implementation process. Consequently, this investigation and analysis can provide an insight of this process by examining the aspects of the implementation, the lifecycle phases followed and the enterprise value drivers in each of these phases. Therefore, a framework was developed for structuring the analysis of this implementation including all these three elements as these were provided by the theoretic background.

The empirical context of this research includes three field investigation studies based on the experience of key implementation stakeholder groups as participants. These investigation studies were analysed using thematic techniques following an interpretative qualitative analysis approach. It was proved that organisations have, directly or indirectly, followed specific lifecycle phases when they implement GRC systems as these are also described in the framework. Also they should consider specific aspects about the GRC systems and enterprise value drivers for the different lifecycle phases but also for a holistic approach of the implementation process. Hence new GRC implementation projects can use the phases and the analysis of these elements to facilitate and ease their decision-making and strategic planning before launching the implementation project.

The analysis of the GRC implementation proved that a strict GRC environment can be established in the organisations through the successful implementation of a GRC technology. The implementation process of such technologies would require a preparation for the organisational environment in order the implementation project to succeed the GRC goals and the system to be integrated and optimised harmoniously within the enterprise environment. This study provides insight of how this implementation projects could be planned and developed and gives a directive blueprint for preparing organisations hosting such technological initiatives.

The results of all field investigation phases, which can be considered as the contributions to theory and practice of this research, can have twofold implications: initially the development of a theoretical framework based on enterprise systems theories, and also an analysis of the GRC implementation process in specific. The framework is designed to structure the analysis of the GRC implementation aspects, the lifecycle phases and the enterprise value drivers of the GRC implementation process. This framework is used for visualising and structuring a specific analysis of the GRC adoption and success, and therefore this analysis can be used by practitioners and researchers to further evaluate and analyse this process. Furthermore, organisations can use this analysis for decision-making processes; as this analysis can provide a primary view for the implementation projects.

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PUBLICATIONS

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1.1. INTRODUCTION

Governance, Risk and Compliance as an integrated concept has gained great interest the last few years among the researchers of the IS field. The term GRC was firstly introduced in 2004 by PricewaterhouseCoopers and since then is becoming a widely spread and important emerging solution for the business requirements of an organisation (Gill and Purushottam, 2008).

A vast amount of definitions has been presented for GRC, most of them though are published by software vendors, analysts and consultancies (Racz et al., 2010b). The first academic definition for integrated GRC was proposed by Racz, et al. (2010b) in their seminal paper for the Proceedings of the 11th joint IFIP TC6 and TC11 conference (page 112) as:

"GRC is an integrated, holistic approach to organisation-wide governance, risk and compliance ensuring that an organisation acts ethically correct and in accordance with its risk appetite, internal policies and external regulations, through the alignment of strategy, processes, technology and people, thereby improving efficiency and effectiveness".

As rapid globalisation induces complexities, leadership requires effective GRC capability to steer through the business minefield (Gill and Purushottam, 2008). Traditionally, governance, risk and compliance activities were scattered in silos all over the organisation, which had a negative impact on transparency and decision making (Vicente and da Silva, 2011). However, the recent dynamic business environment requires from the organisations to integrate, build and support business processes with an enterprise view of risk and compliance (Rasmussen, 2009). To accomplish this objective, organisations need to shift from the scattered and non-integrated risk and compliance approaches, which introduce greater risk and regulatory threats for the enterprises (Gill and Purushottam, 2008; Rasmussen, 2009). Instead of these silo-ed approaches, an enterprise-wide perspective of

integrated GRC will boost organisational performance and protect organisations from inside and outside (Vicente and da Silva, 2011).

In striving for better operational performance, financial governance and lower compliance costs, companies try automated GRC technologies. These automated GRC technologies monitor the transaction controls with the view to improve financial governance and automate audit processes (Caldwell and Proctor, 2009). The need for more effective and efficient business processes within the area of financial controls drives enterprises to successfully implement GRC systems as an overall goal when they are striving for enterprise value of their integrated systems. These enterprises are mostly seeking for an enterprise view with full transparency of their compliance and control environment across their areas of business. Controls that were formerly performed periodically or manually with high levels of inconsistent and unrepeatable results can be automated and optimised through the GRC technologies. Automating the internal control environment and moving towards a GRC system enables an organisation to break free of the burdens traditionally associated with control compliance (Hunt and Jackson, 2010).

The research at hand recognises GRC as a fundamental business requirement and focuses on the need to gain enterprise value from the implementation projects. The implementation projects, except the enterprise value through GRC tools are targeting in reducing compliance costs, strengthening of the control environment and eliminating the risk of unintentional errors or fraud (Hunt and Jackson, 2010). Therefore, the study herein indicates the necessity of supporting an automated governance, risk and compliance environment within the organisation which can be accomplished by GRC solutions. The research will follow an in-depth approach of the GRC implementation process from an enterprise systems perspective by indicating the aspects of GRC implementations, by analysing the implementation lifecycle of these GRC implementation programmes and the enterprise value that can be gained from the successful implementation of such technological solutions. The enterprise systems perspective of these GRC technologies will provide a better insight for this newly developed business solution. Thus an enterprise view of the whole organisational environment hosting such initiatives will help for the understanding of this complex and not adequately researched area.

This chapter includes an introductory part to the research described in the thesis. The next section presents the motivation for researching this specific field and some background information about the GRC systems and their birth. Moreover, in section 1.3 the research questions are defined as well as the research objectives. Moving beyond, section 1.4 presents a summary of the methodological approach followed throughout the research and 1.5 provides the contribution of this research. In the end, an overview of the thesis is developed giving a brief context of the following six chapters.

1.2. MOTIVATION FOR RESEARCHING THE GRC IMPLEMENTATION PROCESS

The perception of well-defined GRC processes was shattered the last few decades as many corporate disasters adversely impacted businesses and rudely awakened governments to act and contain repercussions spilling over to the society and economy (Gill and Purushottam, 2008). The importance and complexity of GRC requirements steadily increase resulting in companies searching for ways to improve their risk performance, while ensuring the fulfilment of the compliance standards with external regulations and laws (Menzies, 2006). While businesses try to tackle these problems, they follow silo-ed approaches to each of these compliance and risk endeavours, isolated from each other (Fisher, 2007) which lead to overwhelming complexity, lack of business agility, poor visibility across the enterprise, wasted resources and greater exposure to risk (Rasmussen, 2009; Volonino et al., 2004).

Most companies and experts acknowledge that their GRC activities are not yet fully integrated (OCEG, 2007). Their argument is that a holistic, integrated, enterprise-wide and strategic approach to GRC can add value and create competitive advantage for the enterprise (PricewaterhouseCoopers, 2004; Rasmussen, 2009; Racz et al., 2010a).

By using an enterprise systems approach of the integrated GRC, the organisations can gain multiple benefits as presented by Rasmussen (2009): enterprise GRC accountability, security, sustainability, consistency, efficiency and transparency. What is more, recent research from OCEG shows that 84% of those who have completed the integration of GRC in their enterprises realise that results meet or exceed their expectations (OCEG, 2007).

The increasingly complex regulatory environment has prompted organisations to focus heavily on issues of risks and controls the recent years (KPMG, 2009). Based on the same report of KPMG (2009) organisations while trying to ensure they are getting business value from their compliance efforts, they try to make them more integrated and effective. For that reason the new business solutions introduce Continuous Control Monitoring GRC practices for the integration of the organisational efforts to address multiple requirements efficiently with tools that enable a single view of organisational risks and controls to mitigate them (KPMG, 2009).

Academic research on the integrated GRC initiative is lacking despite its significance for the organisations (Racz et al., 2010c). Existing literature about GRC implementations indicates that researchers have more ground to cover in this field as a lot of aspects have not been extensively investigated yet (more details are given in sub-section 1.2.3). Therefore, the research will focus on the insight of these aspects that should be provided. More specifically the focus will be on investigating and defining the implementation process of GRC software. Another ambition is to explore and shed more light at the way of analysing and understanding the GRC implementation experience (the aspects and the enterprise value) and how this can provide a strategic advantage for the enterprises.

Understanding the nature and the organisational environment of the GRC systems, can provide a basis for planning the GRC strategy in the enterprises. Therefore this study tries to analyse the aspects of the GRC systems and how these aspects are unique and should be highlighted before implementing such solutions. With a special focus on the aspects of the system, as well as how the implementation of them can add value to the enterprise practices, this study will motivate more researchers to explore further this newly developed area of GRC systems.

1.2.1. ISSUES DRIVING TO AN INTEGRATED GRC APPROACH

The perception of GRC is nothing new and revolutionary, what is introduced with the GRC integrated approach, always existed for every well-run company. Identifying risks, financial reporting and complying with the regulations, always were parts of a company's obligations. The urgency of various issues within the last decade forced companies to adopt a holistic

approach to 'G', 'R' and 'C' principles for their best performance and their strategic advantage.

One of the main issues that caused the birth of GRC as an area of focus was the massive, systematic fraud of the late 1990s, introducing many corporate disasters such as Enron, Societe Generale, WorldCom, Adelphi and others. The controls and external forms of scrutiny had failed in most of the cases for many reasons, including fraud, conflicts of interest and other forms of malfeasance (Broady and Roland, 2008). The trust of government and people in corporations was damaged because of such incidents and resulted in the enhancement of regulations like SOX, BASEL II, J-SOX, India Clause 49 etc (Gill and Purushottam, 2008).

Another issue driving to GRC initiatives was the tightening of trade controls as introduced after the terrorist attacks of 11 September 2001 (Broady and Roland, 2008). Moving beyond, the rising concern about environment and energy consumption forced companies to demonstrate a large term sustainability of their operations and an environmental-friendly strategy (Broady and Roland, 2008).

Not only companies suffered from the increasing oversight of government because of all these issues that had happened around the same period, but also they suffered from financial losses, jail terms for executives, law suits, degradation of credit ratings, higher capital reserve requirements, stock price drops etc (Gill and Purushottam, 2008).

The rise of compliance regulations, coupled with the increasing need of sensitive data security are some of the challenges enterprises are facing nowadays. The need to objectively assess and proactively manage the risks, as well as the globalisation of the markets (resulting in frequent mergers and acquisitions) reveals the business pressures that drive to GRC investments, as presented by Aberdeen Group (Aberdeen Group, 2008). The Figure 1.1 below reveals the key pressures driving investments in GRC solutions.

The two basic reasons according to the same report (Aberdeen Group, 2008) that drive organisations to GRC implementation solutions based on the data of Figure 1.1 are:

- Outside pressures from regulatory bodies

- Awareness of the rising risks of not having such a program in place
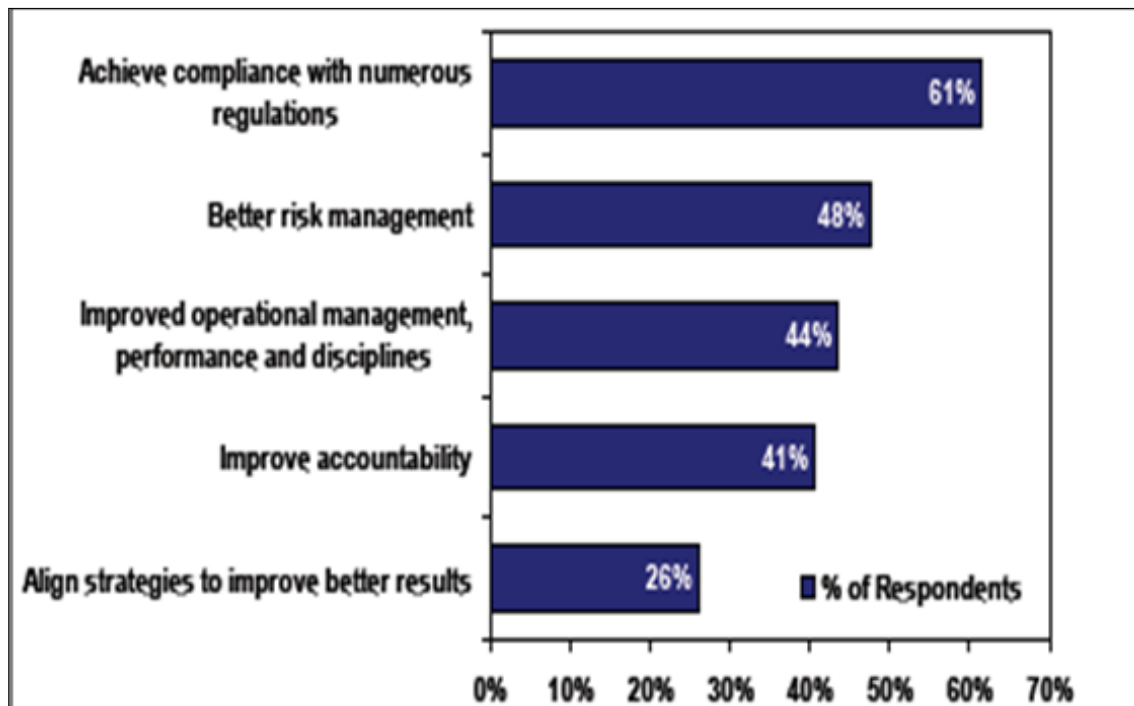
Figure 1.1: Key pressures driving investments in GRC solutions (Aberdeen Group, 2008)

1.2.2. GRC IMPLEMENTATION AND ORGANISATIONAL CHALLENGES

The benefits of a comprehensive GRC implementation are characterised as crucial for the enterprises, while only a small percentage of them have begun investing in GRC solutions, due to its relatively short life (EPICOR, 2008). EPICOR (2008) also points out the hazards businesses can face without GRC:

- Exposure to risk and liability of financial penalties stemming from compliance failure

- Increasing fragmentation of people, process and technology

- Excessive drag on the company that limits opportunities

- Wasted time and resources

Although the numerous benefits of GRC initiatives, there are also a variety of challenges associated with the implementation of it. These problems, as listed by Aberdeen Group (2008) are mentioned at Figure 1.2.

Most of the problems associated with the ineffective communication of policies and procedures were most often rooted in organisational structure (Aberdeen Group, 2008). Dittmar (2007) points out that "a common integrated approach to governance, risk and compliance is needed to overcome business unit, functional, geographic, process and technology silos" (Dittmar, 2007). The silo-ed approach is especially painful when trying to identify and manage risk. The lack of communication between silos can create further risks for the enterprises.
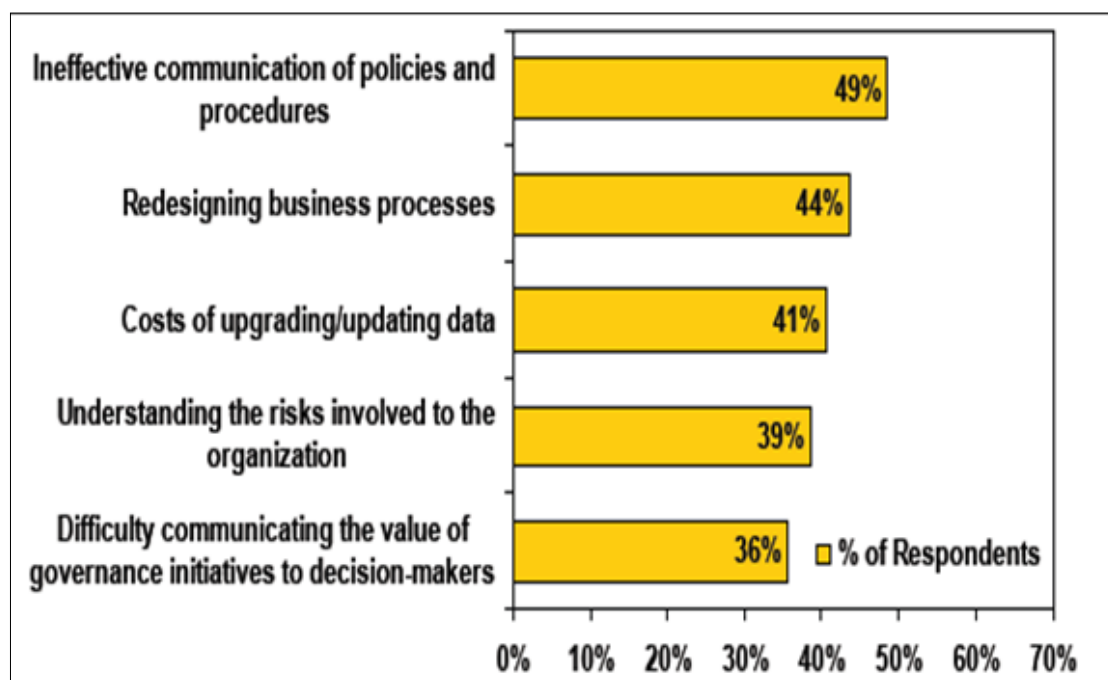
Figure 1.2: Anticipated problems in implementing GRC solutions (Aberdeen Group, 2008)

Mitchell (2007) mentions also the challenges that appear along the way of GRC integration (Mitchell, 2007), these are mostly the following:

- *People like their jobs:* the enterprise integration introduced by GRC implementation usually results in reduction of the staff or status in the organisation.
- *People like their silos:* the silo-ed approach exist in organisations since long time. An enterprise-wide solution involves change management issues.
- *People like their spreadsheets:* new skills are required as the goal of GRC is to raise the level of competence across the board.
- *Insufficient outrage about what is known:* there are a lot of costs for the full and best performance of GRC.

Organisations should initially consider their objectives from a GRC solution. Firstly, they need to map the GRC initiative to their business goals. More specifically they need to automate their processes for enterprise risk management and analysis as well as to align IT with the business operations in order to achieve an enterprise-wide solution for GRC and get the full potential of such systems. Figure 1.3 identifies the factors required for a GRC solution in order to function effectively.
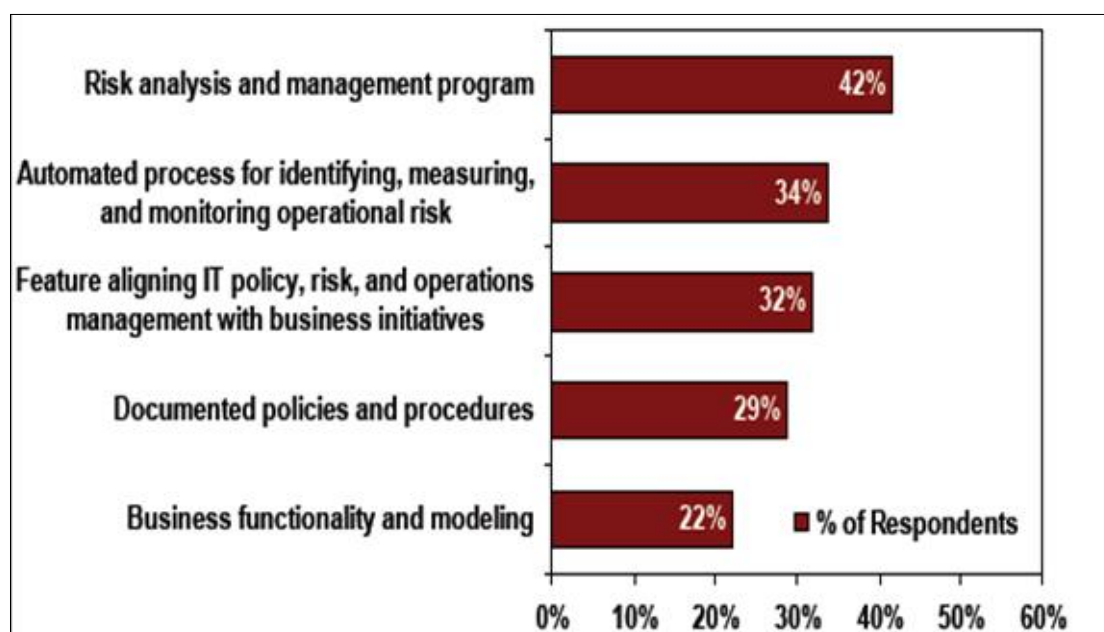
Figure 1.3: What organisations seek in a GRC solution (Aberdeen Group, 2008)

1.2.3. LIMITATIONS OF PREVIOUS RESEARCH ON INTEGRATED GRC IMPLEMENTATION

Recent studies on GRC have highlighted the lack of scientific research in integrated governance, risk and compliance (Racz et al., 2010b). While the area of GRC implementations has been an emerging one, especially within the last few years, most of the frameworks developed so far cannot give a clear view of integrated GRC and specifically the implementation of it. Furthermore, these frameworks cannot provide a roadmap for the organisations with regard to the GRC implementation process and how they can strategically benefit by aligning GRC technological infrastructure with their business objectives. A few frameworks were identified presenting models with reference to integrated GRC solution.

The Open Compliance and Ethics Group (OCEG) presents the OCEG Capability Model GRC360 which consists of nine categories and 29 sub-elements for each of which sub-practices are listed (OCEG, 2007; Racz et al., 2010a). The model gives an insight to GRC practices and activities; however it does not distinguish between operative and managerial processes (Racz et al., 2010a). Mitchell (2007) also proposes a framework to drive "principled performance" which is basically the very early stage of GRC360 Capability Model (Mitchell, 2007). The OCEG Capability model is also discussed by Rasmussen (2009) who refers to the "Enterprise view of Risk and Compliance" and proposes OCEG Capability Model as an Enterprise Architecture for GRC (Rasmussen, 2009).

Paulus (2009) on the other hand, describes "GRC Reference Architecture" with a model which consists of four major phases:

a) requirements modelling

b) status investigation

c) situation improvement

d) crisis and incident management

This model is easy to understand (Paulus, 2009), however it does not include in-depth analysis and basis to the implementation of GRC. The "Strategic Framework for GRC" (Frigo and Anderson, 2009) describes the 'risk policies and appetite' and these set overall common goals for adding value and protecting the common processes associated with GRC practices. It can strategically help organisations to manage their GRC initiatives; however the framework mixes processes with organisational entities and objectives and sometimes can be difficult to follow especially for enterprises not very familiar with the GRC landscape (if they are at their early stages of risk management).

Tapscott's (2006) approach to GRC gives four core values for the enterprises to achieve the 'trust' expectation, which is their main aim when they take an integrated approach to GRC. This approach (Tapscott, 2006) although it is easy to follow, does not translate its four core values into a process model that would help enterprises take a wider view of their GRC activities. Another research, conducted by PricewaterhouseCoopers (2004) develops an Operational Model for GRC; however this model also mixes in each of the four steps which it

is consisted of, the organisational entities, activities and the relationships involved within these steps. This Operational Model (PricewaterhouseCoopers, 2004) combined with the four core values as presented by Tapscott (2006) could develop essential tools for the GRC implementation process analysis.

Wiesche et al. (2011) present a GRC framework by linking GRC to Accounting Information Systems the result of which is the "Framework for GRC IS Value Drivers". This framework (Wiesche et al., 2011b) is mostly about the accounting perspective of GRC and not an enterprise-wide approach. Furthermore, Racz et al. (2010b) translated the GRC definition to a "Frame of reference for GRC Research" which depicts the definition into a figure and is the basis for the research in the GRC field (Racz et al., 2010b).

A framework for GRC is also presented by Gericke et al. (2009). The core aim of this framework is to analyse the GRC implementation with situational method (Gericke *et al.*, 2009) while identifying the method fragments. The method fragments are divided into five categories: conceptual, strategic, organisational, technical and cultural. The basis for this research is the GRC solution rollout, rather than the successful implementation of the GRC software. This framework will be used for the development of the analysis framework for the integrated GRC implementation. More recent research in the field of integrated GRC includes the "Conceptual Model for Integrated Governance, Risk and Compliance" by Vicente and da Silva (2011) which presents the concepts and the key functions of GRC by using OCEG Capability Model (2009). The Conceptual Model can be used for the better understanding of GRC integration and as a tool for structuring the analysis framework of integrated GRC implementation process.

Author	Year	Description	Focus
Open Compliance and Ethics Group (OCEG)	2009	Presents the OCEG Capability Model GRC360 which consists of nine categories and 29 sub-elements for each of which sub-practices are listed	Insight to GRC practices and activities
Mitchell	2007	Proposes a framework to drive "principled performance"	The very early stage of GRC360 Capability Model
Rasmussen	2009	Refers to the "Enterprise view of Risk and Compliance" and proposes OCEG Capability Model as an Enterprise Architecture for GRC	The Enterprise Architecture for GRC
Paulus	2009	Describes a model which consists of four major phases: a. requirements modelling, b. status investigation, c. situation improvement, d. crisis and incident management.	GRC Reference Architecture
Frigo and Anderson	2009	Describes the 'risk policies and appetite' and these set overall common goals for adding value and protecting the common processes associated with GRC practices	Strategic Framework for GRC
Tapscott	2006	Gives four core values for the enterprises to achieve the 'trust' expectation, which is their main aim when the take an integrated approach to GRC.	Four core values approach
PricewaterhouseCoopers	2004	Develops a model consisted of four steps, as well as organisational entities, activities and the relationships involved within these steps	An Operational Model for GRC
Wiesche et al.	2011	The "Framework for GRC IS Value Drivers" which is mostly about the accounting perspective of GRC and not an enterprise-wide approach.	A GRC framework linking GRC to Accounting Information Systems

Racz et al.	2010	Depicts the definition into a figure and is the basis for the research in the GRC field.	Translated the GRC definition to a "Frame of reference for GRC Research"
Gericke et al.	2009	A framework for GRC with the core aim to analyse the GRC implementation with situational method while identifying the method fragments. The method fragments are divided into five categories: conceptual, strategic, organisational, technical and cultural	The GRC solution rollout
Vicente and da Silva	2011	Presents the concepts and the key functions of GRC by using OCEG Capability Model (2009)	"Conceptual Model for Integrated Governance, Risk and Compliance"

Table 1.1: Existing Frameworks for GRC systems (Spanaki and Papazafeiropoulou, 2013)

1.3. RESEARCH QUESTIONS, AIM, AND OBJECTIVES

The previous sections described the importance of the successful GRC implementation and the strategic value it can provide for the enterprises that decide to implement such solutions.

The research questions motivating this study will be formed as follows:

> ➤ *What are the various GRC implementation aspects?*
> ➤ *How are these aspects utilised in the GRC implementation lifecycle phases?*
> ➤ *Which are the enterprise value factors of the GRC adoption?*

The aim of this research is to provide an analysis of the GRC implementation aspects, the implementation lifecycle phases and the enterprise value factors of this process following an enterprise systems perspective.

Therefore the initial focus of this research is the review of the literature in the area of enterprise systems (ES) implementation with a particular focus on GRC systems; looking

specifically on the aspects associated with the enterprise systems (ES) Implementation experience, as well as those associated with the GRC Implementation experience. This step will assist in gaining an in-depth understanding of the GRC specific aspects and how these systems are operating. This target will also be followed by assimilating the GRC systems with the broader group of enterprise systems; while understanding the similarities and differences these systems share with other enterprise technologies. The assimilation of enterprise systems with the GRC systems will support the use of general enterprise systems theories for the case of GRC systems, and also will indicate the areas where more attention should be paid in order to develop an approach covering all the GRC aspects even those that are not addressed in general enterprise systems theories. Understanding the aspects and the specifics of the GRC systems will also assist in the investigation of the implementation lifecycle phases and the various interests and activities of the stakeholders involved in each of these phases. Finally, by gaining a more focused understanding of the GRC implementation lifecycle will also support the examination of the value the enterprises can achieve through the implementation of such systems.

Hence, *f*ollowing the above, the research objectives that motivate the research are:

➢ *Gain a broad understanding of the enterprise systems (ES) implementation area with a particular focus on GRC systems and their implementation (Chapter 2)*

➢ *Understand the relationship of the enterprise systems (ES) and GRC (Chapter 4)*

➢ *Investigate the further the area of GRC by assimilating it to the ES (Chapter 4)*

➢ *Getting a first insight of the GRC Implementation by the Identifying of the phases of the GRC implementation lifecycle and the various interests and activities of the stakeholders involved in each of these phases (Chapter 5)*

➢ *Enhance the knowledge of GRC implementation gained till this point by investigating the enterprise value factors achieved throughout the GRC implementation experience (Chapter 6)*

➢ *Reflect on all the previous points of the study with a discussion about the GRC implementation process aspects, lifecycle and enterprise value factors (Chapter 6)*

The aim and objectives derived from the research motivation will be further analysed in the following chapter (Chapter 2), highlighting the gaps in the literature associated with the GRC systems and their implementation process.

1.4. RESEARCH DESIGN

The philosophical research stance that was followed for the research at hand is interpretivism. The reason for following interpretivism stance is that there are a lot of social, political and cultural issues related to the GRC implementation experience. Therefore, the study of the GRC implementation experience cannot be separated from its organisational and cultural context. Another reason is also the fact that interpretivism allows concepts to emerge from field data rather than using preconceived theories from the field (Miles and Huberman, 1994).

This specific study required rich empirical data, in order to provide a better understanding as far as the GRC implementation process is concerned. The main reason for selecting qualitative approach for this research is because this approach is suitable for studying things in their natural settings, attempting to understand phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 2000).

The research strategy selected for this research is field study (Burgess, 2004). Field research involves the researcher in a relationship with the subjects of the study; it is a social process in which the researcher plays a major part according to Burgess (2004). Field research involves the activities of the researcher, the influence of the researcher, the practices and procedures of doing research and the methods of data collection and data analysis.

The data analysis followed a thematic analysis approach. Thematic analysis is a method for identifying, analysing and reporting patterns (themes) within data (Braun and Clarke, 2006). It organises and describes data in detail, however frequently it interprets also various aspects of the research topic (Boyatzis, 1998). The analysis generated initial codes through a theory-driven thematic analysis approach (Braun and Clarke, 2006), using the Enterprise System Implementation theories. The data from the interviews conducted were analysed through the six phases of thematic analysis as described by Braun and Clarke (2006). The

first five phases helped in building the framework for the analysis of GRC implementation process. The sixth phase comprised the analysis of the implementation process with the help of the framework that will be developed.

1.5. RESEARCH CONTRIBUTION

The research aims to demonstrate the use of Enterprise Systems implementation theories (Markus and Tanis, 2000; Davenport et al., 2004) as a foundation for the GRC implementation process. Therefore, the framework which will introduce the baseline of the analysis of the GRC implementation process will be adopted by both these two as it will be described at the following chapters. The research will include theoretical and empirical investigation about the GRC implementation process within enterprises and its aspects and will lead to a further analysis of the GRC implementation process in detail which will be a roadmap for gaining strategic benefit of this enterprise-wide solution.

From a practical perspective, the research outputs and insights will help enterprises to avoid silo-ed approaches of GRC and avoid further risks that these include. Furthermore, they can develop and improve their GRC strategy by knowing the process in detail; for their competitive advantage and in order to gain a better view of their enterprise value while implementing GRC. The information regarding the GRC systems provided by this study, can assist in understanding the GRC systems and developing a plan for their implementation strategy and also identifying the critical areas of focus, in order for this implementation plan to be successful.

From a theoretical perspective, the research will contribute to the knowledge about GRC systems and their implementation process within the enterprises, as an attempt to gain a better insight of this new area of enterprise systems. Secondly, it will enrich the existing GRC frameworks by focusing on the implementation of them. The use of enterprise systems theories for the analysis of the GRC implementation process, will add theoretical aspects researched for different enterprise software implementation projects. By using these theories, similarities and differences of the implementation process of the broad enterprise software can be identified for the GRC implementation. This study uses enterprise systems implementation lifecycle theories (Markus and Tanis, 2000) as well as enterprise value

theories (Davenport et al., 2004) to assist the analysis of the GRC implementation process. The use of enterprise systems theories for the research herein can also develop more theoretical aspects in the literature of the enterprise systems area, and as a result will broaden the literature of enterprise systems with more focused research on GRC systems.

1.6. STRUCTURE OF THE THESIS

The structure of this thesis is depicted in Figure 1.4. The thesis will be divided in seven chapters as described in the following points:

Chapter 1: Provides an overview of the motivation for researching the GRC implementation process, the research aim, the research objectives and the questions coming from them. It also gives a brief view of the design and contribution of this research.

Chapter 2: Provides a literature review about Enterprise Systems in general. A more specific literature review about GRC systems is following the general view of enterprise systems. The literature aspects covered as well at this chapter include a more detailed review of the literature about ES systems and GRC systems regard their implementation process. The chapter closes with an overview of the enterprise system theories, these theories are about the enterprise experience lifecycle (Markus and Tanis, 2000) and the enterprise value (Davenport et al., 2004). These theoretical foundations will assist this research in developing an enterprise systems perspective and for building the analysis framework for the implementation process described in the later chapters.

Chapter 3: Provides an analysis of the research methods used in this thesis to examine the GRC implementation process. The chapter discusses what should be considered before selecting the appropriate research approach. This chapter also describes the underlying research assumptions for the IS research and the rationale for the approach followed and how is this suitable for this specific research.

Chapter 4: Includes a detailed description of the empirical context of this research. The two first phases of the data collection are described in this Chapter and their similarities/differences are identified. Initially there is a presentation of the first phase of the data collection related to enterprise systems (ES) implementation aspects. This first

phase served an empirical basis for this research as well as provided data for investigating the assimilation between this implementation to the GRC implementation (that will follow later). The second phase of the data collection will be briefly described here as well as an overview of the GRC implementation aspects as these were described in the empirical data of the second phase of the data collection. The chapter also includes the discussion about the assimilation between the implementation of enterprise systems and GRC systems.

Chapter 5: Includes the data collected at first part of the third phase of the research. The data gathered in the previous stages of the research will be used here for choosing the GRC implementation lifecycle phases. The chapter will focus on the various interests and activities of the key stakeholders throughout the GRC implementation lifecycle as well as will support the designing of the dimensions for the analysis framework of the reflective discussion that will follow.

Chapter 6: Provides a discussion about the data gathered at the second part of the third investigation phase and more specifically the dimensions developed through the data analysis. It also includes a discussion about the GRC implementation analysis framework and how this was developed from the data and literature. This chapter also discusses how the GRC implementation can be analysed through the use of the framework proposed by the results of this research.

Chapter 7: This chapter is the summarising part of all the previous chapters, as well as an overview of the research contribution regards the theoretical, methodological, and practical use of it. The limitations of the research approach and further research directions will be presented at this chapter.

Chapter 1

• Introduction and motivation for research

Chapter 2

• Literature overview on Enterprise Systems (ES systems), GRC systems and their implementation and the theoretical foundations that supported this research (enterprise experience lifecycle and the enterprise value theories)

Chapter 3

• Selection of the approapriate methodological approach

Chapter 4

• Description of empirical context; the first two investigation phases. The ES implementation investigation and GRC implementation investigation. Description of the ES and GRC implementation aspects and their assimilation.

Chapter 5

• Description of the first part of the third investigation phase of the GRC implementation process. Data collection about the interests and activities of the key stakeholders involved throughout the GRC implementation lifecycle phases.

Chapter 6

• Description of the second part of the third investigation phase of the GRC implementation process. Data about the three dimensions of enterprise value. Discussion of the GRC implementation analysis framework; how it was developed through the investigation and how it can assist the analysis of GRC implementation process.

Chapter 7

• Conclusion, contribution and further research

Figure 1.4: Structure of the thesis

CHAPTER 2:
LITERATURE REVIEW

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

In recent years, Governance, Risk and Compliance (GRC) software has introduced a new wide area of study within the discipline of Enterprise Systems. Due to their integrated nature that includes these three aspects together in an aligned solution, the enterprises invest on these systems for the maximisation of their strategic benefits. Instead of treating each of these three issues (governance, risk and compliance) as individual problems, organisations employ GRC suites that give them the big picture of the problem. This big picture requires a holistic view of the GRC controls, the business processes and applications and that can be achieved through a successful implementation of GRC systems within these organisations as discussed also in the previous chapter.

Thus, the background research review that follows provides the existing literature for the aspects that were discussed and analysed in the area of GRC systems and their implementation. For the better understanding of the GRC, the enterprise system literature will give general information about these integrated systems in order to understand easier the move to GRC systems. Furthermore, the enterprise integration part will provide insight of how the aspect of integration works in these enterprise systems. The integration part also will be used for the better understanding of how systems like GRC that are consisted of different aspects together, can be used for the maximisation of the enterprise benefits, if their implementation process is successful. The following literature includes the enterprise system (ES) implementations that can be used as a base to frame the GRC implementations and thus achieve enterprise value from them.

Moving beyond, the other parts will include ES project failure and critical success factors as a foundation for the GRC implementation. Furthermore, for the better understanding of GRC implementation, some background information will be provided to give an idea of how these systems can become a part of the enterprise landscape. Additionally, a framework for

the investigation of the GRC implementation projects will be initially formed from the theoretical perspectives of enterprise system success.

The chapter is structured as follows. Initially, the first principles presented are those of the enterprise systems (section 2) and the GRC systems (section 3). The enterprise system implementation (section 4), will be presented in order to assist in understanding the enterprise value gained through the implementation of GRC systems. Moving further, section 5 includes the GRC implementation literature and section 6 will provide information about the ES success theories that will be used after the data collection. The ES theories will support the development of the analysis framework proposed by this study. The last section (section 7) proposes a framework for the study of enterprise value through the GRC implementations, which combines theories of enterprise system success and the enterprise experience lifecycle.

2.2. ENTERPRISE SYSTEMS

Today, most organisations own a plethora of Information Systems (IS) that were implemented throughout the years, in order to fulfil different upcoming technological needs. However, the concept of Enterprise Systems (ES) as an integrated software solution of multiple functional applications and other information systems was initially developed in the mid-1990s. Until that time, enterprises were using smaller software packages, different information systems for each application which were not integrated and often included duplications of the same data.

Managers have struggled for years, at great expense and with great frustration, with incompatible information systems and inconsistent operating practices (Davenport, 1998), for them an enterprise system seemed as a dream to come true.

There are many definitions of enterprise systems, and most of them refer to Enterprise Resource Planning (ERP) systems as enterprise systems. Although the ERP systems are enterprise systems, the range of enterprise systems available is growing and includes except ERPs, also CRM (Customer Relationship Management), SCM (Supply Chain Management),

enterprise portals (Ward et al., 2005; Markus and Tanis, 2000), as well as GRC (Governance, Risk and Compliance) and other recent systems.

For Davenport, et al. (2004) enterprise systems are:

'Packaged software applications (from vendors such as SAP, Oracle, Peoplesoft and J.D. Edwards) that connect and manage information flows within and across complex organisations, allowing managers to make decisions based on information that truly reflects the current state of their business. These systems also automate business transaction processes and thus have the potential to reduce costs' (page 16)

A definition for enterprise systems is given also by Ward et al. (2005) as:

'Enterprise systems are configurable off-shelf software packages that provide an integrated suite of systems and information resources for operational and management processes across a broad range of business activities' (page 97)

According to Shang and Seddon (2002) at their article in Journal of Information Systems page 272:

Enterprise systems (ES) are large-scale organisational systems built around packaged enterprise system software. Enterprise system software (ESS):

- *is a set of packaged application software modules with an integrated architecture, which can be used by organisations as their primary engine for integrating data, processes and information technology, in real time, across internal and external value chains;*

- *contains deep knowledge of business practices accumulated from vendor implementations in a wide range of client organisations;*

- *is a generic 'semi-finished' product with tables and parameters that user organisations and their implementation partners must configure, customise and integrate with other computer based information systems to meet their business needs.*

Markus and Tanis (2000) describe enterprise systems with a more brief definition as:

'Commercial software packages that enable the integration of transactions-oriented data and business processes throughout an organisation' (page 176)

Literature also refers to the benefits that enterprise systems include, Davenport (2000) describes five benefits for enterprises that implement such systems, and these are: cycle time reduction, faster information transactions, better financial management, laying the groundwork for electronic commerce and making tacit process knowledge explicit (Davenport, 2000). For Markus and Tanis (2000) the reasons for adopting enterprise systems are divided in two categories (business and technical) and they are given at Table 2.1 below.

	Small Companies/ Simple Structures	Large Companies/ Complex Structures
Technical reasons	• Solve Y2K and similar problems • Integrate applications cross-functionally • Replace hard-to-maintain interfaces • Reduce software maintenance burden through outsourcing • Eliminate redundant data entry and concomitant errors and difficulty analysing data • Improve IT architecture • Ease technology capacity constraints • Decrease computer operating costs	• Most small/simple company reasons plus • Consolidate multiple different systems of the same type (e.g., general ledger packages)
Business reasons	• Accommodate business growth • Acquire multi-language and multicurrency IT support	• Most small/simple company reasons plus • Provide integrated IT support

	• Improve informal and/or clean up data and records through standardisation	• Standardise different inefficient business processes numbering, naming, and coding schemes
	• Reduce business operating and administrative expenses	• Standardize procedures across different locations
	• Reduce inventory carrying costs and stock-outs	• Present a single face to the customer
	• Eliminate delays and errors in filling customers' orders for merged businesses	• Acquire worldwide "available to promise" capability
		• Streamline financial consolidations
		• Improve companywide decision support

Table 2.1: Reasons for adopting Enterprise Systems (Markus and Tanis, 2000)

Enterprise systems as it is mentioned also before provide both business and technological advantages to the companies that seized the opportunity to implement them. Such systems permit companies to reorganise their business processes to support the new organisational paradigm, as well as they support common, global business processes, and therefore facilitate data integration across the enterprise (Scott and Vessey, 2002).

However, implementing an enterprise system is a major undertaking (Scott and Vessey, 2002), as the enterprise systems except the advantages they promise, they have also some disadvantages which should be taken into consideration before implementing them. Regards the disadvantages of enterprise systems, Davenport (2000) mentions four issues as the most criticised: their inflexibility (difficulties in fitting the enterprise system to a business), the long implementation periods they require, overly hierarchical organisations (it is presumed that information is centrally monitored and organisations have a well- defined hierarchical structure) and inadequate technology.

Business benefits from ES use are multidimensional, ranging from operational improvements through decision-making enhancement to support for strategic goals (Davenport, 2000; Deloitte Consulting, 1998; Markus and Tanis, 2000; Ross and Vitale,

2000). Literature also mentions ES benefits in these areas, including both tangible and intangible benefits (Irani and Love, 2000; Wilderman, 1999; Holland et al., 1999; Cooke and Peterson, 1998; Gartner Group, 1998). However, the ES benefits discussed in the above studies tend to be either snapshots taken at one moment in the life of an ES or very high-altitude pictures of ES benefits (Shang and Seddon, 2002). None of them offers the comprehensive view of long-term benefits needed if sound evaluations of investments in enterprise systems are to be made (Shang and Seddon, 2002).

Enterprise systems represent an important contemporary phenomenon in the organisational use of information technology. As Markus and Tanis (2000) indicate the most distinct differences between an enterprise system and other transaction-oriented systems are that:

1. The enterprise system is a package versus a system custom developed in-house (implying long-term dependence on a vendor)
2. Embedded in the enterprise system are normative business practices (requiring many adopting organisations to undertake some form of process reengineering).

While enterprise systems are still an area to be explored more extensively, many organisations approach them with knowledge and skills that are gained throughout the use of them (Markus and Tanis, 2000; Davenport, 1998).

Whether or not enterprise systems will remain an enduring part of the IT landscape clearly remains to be seen, but, because they have become such a large organisational part, they will continue to be a consequential phenomenon for some years to come (Markus and Tanis, 2000). Enterprise systems affect nearly all aspects of organisational life, from their start but also throughout their operational lives. For that reason, they should be updated often and they should also be capable of integrating and automating a wide range of transaction-processes and simultaneously undertake changes in their businesses (Davenport et al., 2004).

2.2.1. Enterprise Resource Planning (ERP) Systems

Within the enterprise systems area, most of the literature refers to Enterprise Resource Planning (ERP) systems as enterprise systems (as it was also mentioned in a previous section). Although the ERP systems are enterprise systems, the range of enterprise systems available is growing. However, at this section the ERP literature will be presented in order to give more insight about the ES and their implementation, as ERP literature is usually also referring to general ES literature.

The historical evolution of Enterprise Resource Planning (ERP) systems dates back to 1960's (Rashid et al., 2002) when the technological solutions focused mostly on inventory packages and the most efficient way to manage them (Gumaer, 1996; Umble et al., 2003a). Later in 1970's, the Materials Requirement Planning (MRP) systems were introduced for supporting the material planning process (Gumaer, 1996; Umble et al., 2003a; Basoglu et al., 2007).

With the beginning of 1980's, the MRP system has been updated to MRPII, which included areas such as shop floor, distribution management, project management, finance, human resource and engineering (Rashid et al., 2002). These systems incorporated the financial accounting system and the financial management system along with the manufacturing and materials management systems (Umble et al., 2003a; Basoglu et al., 2007).

However, the MRPII was the first step for the evolution that followed in 1990s with the development of a rather more integrated solution called ERP (Chung and Snyder, 1999). Figure 2.1 and Table 2.2 depict the evolution of ERP.

2000s	**Extended ERP**	
1990s	**Enterprise Resource Planning (ERP)**	
1980s	**Manufacturing Resources Planning (MRP II)**	
1970s	**Material Requirements Planning (MRP)**	
1960s	**Inventory Control Packages**	

Figure 2.1: Evolution of ERP (Rashid et al., 2002)

Types of Systems	Time	Purpose	Systems
Reorder point systems	1960s	Used historical data to forecast future inventory demand; when an item falls below a predetermined level, additional inventory is ordered	Designed to manage high-volume production of a few products, with constant demand; focus on cost
Materials Requirement Planning (MRP) system	1970s	Offered a demand-based approach for planning manufacture of products and ordering inventory	Focus on marketing; emphasis on greater production integration and planning
Manufacturing Resource Planning (MRPII) systems	1980s	Added capacity planning; could schedule and monitor the execution of production plans	Focus on quality; manufacturing strategy focused on process control, reduced overhead costs, and detailed cost reporting
MRPII with Manufacturing Execution (MES) systems	1990s	Provide ability do adapt production schedules to meet customer needs; provide additional feedback with respect to shop floor activities	Focus on the ability to create and adapt new products and services on a timely basis to meet customers' specific needs
Enterprise Resource Planning (ERP) systems	Late 1990s and onward	Integrate manufacturing with supply chain processes across the firm; designed to integrate the firm's business processes to create a seamless information flow from suppliers, through manufacturing, to distribution to the customer	Integrates supplier, manufacturing, and customer data throughout the supply chain

Table 2.2: Historical evolution of ERP systems (Sumner, 2005)

Markus et al. (2000) claimed that ERP systems work essentially at integrating inventory data with financial, sales, and human resources data, allowing organisations to price their products, produce financial statements, and manage effectively their resources of people, materials, and money.

Enterprise resource planning systems are widely known for the change they provided to the business environment. The tools and structures of such systems fostered globalisation, outsourcing of core functions and redesigning of business processes (Sutton, 2006) and provided the promise for the organisations to gain a competitive advantage against their opponents (Basoglu et al., 2007). However, in order to achieve that, they needed to upgrade their capabilities, improve their own business practices and procedures (Loizos, 1998) and change their Information System (IS) strategies by adopting ERP software packages (Holland and Light, 1999).

More research about the area of ERP is provided by Dillard, et al. (2005) with critical theory of ERP, their controlling role, the organisational change they provide and the standardisation of processes through them. Some other studies examine the improvement of a firm's performance after implementing ERP systems (Poston and Grabski, 2001;

Nicolaou and Bhattacharya, 2006). Further literature is related with ERP information architectures and accounting models (Geerts and McCarthy, 2002) as well as analysis of the user behaviour to such models (Dunn and Gerard, 2001). There is also a study that has been conducted in Australia (Booth et al., 2000) where the issue of improving business processes (financial and non-financial) through ERP was addressed and proved the effectiveness of transaction processing.

Arnold (2006) is discussing the advantages of behavioural research, which may enlighten the understanding of the impact of ERP (particularly the accounting function) on organisations and individuals in them. According to Sutton's (2006) perspective there are a lot of sub-disciplines of ERP in accounting that researchers refer to them in the overall understanding of ERP systems. Some examples of these areas of enterprise systems and accounting are the following (Sutton, 2006):

• Financial accounting

• Managerial accounting

• Auditing and assurance

According to Kumar, et al.(2003) ERP systems are being developed continuously and nowadays they can encompass all integrated information systems that can be used across any organisation. Also, ERP systems gained importance as they arrived at a time when process improvement and accuracy of information became critical strategic issues (Yen and Sheu, 2004).

2.2.2. THE INTEGRATION OF MULTIPLE ERP SYSTEMS AND THE CHALLENGE OF INTERNAL AND EXTERNAL COMPLIANCE

The explosion of information technology in the world of enterprises could be characterised as the most notable change throughout the history of business (Maurizio et al., 2007). Information technology supplied companies with better information that could be faster delivered and has a tremendous impact on information management and business process reengineering (Davenport, 1998). Furthermore, Maurizio, et al. (2007) recognise enterprise

system implementations as change initiatives enabling organisational transformation and process redesign.

Nowadays, considering the Sarbanes – Oxley Act of 2002, companies should be able to achieve compliance and develop means that audit themselves internally (Sarbanes-Oxley Compliance Journal, 2005). The main idea behind Sarbanes- Oxley (SOX) is that if the controls are efficient, accountability is established and a real-time mechanism is in place (Lazarides, 2007). Accuracy and timeliness of financial reporting relies heavily on well-controlled IT environments, as mentioned by Lazarides (2007).

Enterprise systems and more specifically ERP systems provide the primary means for implementing SOX requirements, particularly in large companies (Kumar et al, 2008). More specifically, ERP systems are described by Al-Mashari (2002) as comprehensive packaged software applications that automate and integrate organisational business processes across functional areas. They are characterised as 'most significant and widely adopted innovations in management information systems' (Al-Mashari, 2002). Bititci. et al.(2000) referring to ERP systems, characterise them as dynamic and continuously evolving, as they can be redesigned and developed (Bititci et al., 2000). Such dynamic environments as ERP systems require also the continuous monitoring, evaluation and adjustment of systems, processes and controls (Kumar et al., 2008).

Moving further, ERP can help and manage effective controls and contribute to the key objectives of SOX compliance, as mentioned before. However, the need of significant re-configuration, additional design, evaluation and reporting aspects, is raised by Colman (2006) and Damianides (2004). These requirements are described as key drivers for ERP facilitated SOX compliance (Colman, 2006; Damianides, 2004).

With regard to the challenges of designing, implementing and managing enterprise systems for SOX compliance, they are interrelated (Kumar et al., 2008). More specifically, these challenges are technical (eg. data structures, inadequate security, differences in infrastructure etc), whereas others are structural and cultural (eg resistance to change, ineffective processes, lack of skills etc).

2.3. GOVERNANCE, RISK AND COMPLIANCE (GRC) SYSTEMS

The Sarbanes – Oxley Act of 2002 is particularly notable for its wide-ranging IT impacts and responsibilities for governance expectations and compliance requirements (Dittmar, 2006). Recently, legal and regulatory requirements made many organisations to invest on risk and control functions. This fact has resulted in expansion of areas such as compliance, legal, internal auditing and enterprise risk management (Frigo and Anderson, 2009). These concerns fostered the creation of governance, risk and compliance (GRC) initiatives for the organisation's risk and control improvement. The massive amount of people and money resources expended to comply with SOX the last years have driven enterprises to seek opportunities to streamline the ongoing compliance process (Kuhn Jr and Sutton, 2010; Kanellou and Spathis, 2011). Continuous auditing applications enable enterprises to strengthen their internal control environment and provide more efficient practices in the overall compliance activities (Kuhn Jr and Sutton, 2010). The last few years, companies seem to be quite interested in identifying solutions for continuous auditing and control practices that will help to reduce the costly effort related to SOX compliance by using new technological GRC solutions (Kuhn Jr and Sutton, 2010; Kanellou and Spathis, 2011).

Cangemi (2008) refers to implementation of GRC strategy as a very demanding one, in terms of both complexity and cost. For many organisations GRC challenge was facilitated by people resources to monitor the performance (Cangemi, 2008). Since that approach was not applicable in terms of cost and efficiency, a new solution could be to adopt automation technology in order to reduce the cost and drive more consistent processes.

GRC software is a term applied to products that help companies dealing with areas as far as Sarbanes – Oxley compliance, risk management and IT governance (Kelly, 2009). Furthermore, 'since GRC technology comprises three separate activities, companies naturally emphasise on different reasons for investing in it' (Edwards, 2009). Another important characteristic of GRC tools is that this software is independent from ERP systems and can therefore provide 'a singly companywide platform for control and compliance, even when multiple ERP systems are in place' (Cangemi, 2008).

For the moment, there is basically very few academic research studies on GRC as an integrated concept, while a lot of research exists on the 'G', the 'R' and the 'C' as separate topics (Racz et al., 2010b). Moreover, according to Racz, et al. (2010a) only software vendors, analysts and consultancies are the main GRC publishers. For that reason, there is not a commonly acceptable definition of GRC based on the existing literature so far.

Governance	Risk Management	Compliance
✓ How a strategy will be executed. ✓ Making sure that the policies and procedures are in place to run a company. ✓ How these policies are communicated. ✓ How these policies and procedures are followed and updated. ✓ What controls are in place. ✓ How these methods of checking can be improved.	✓ the risk of failing to comply with regulations (for financial reporting, trade, environmental protection or safety). ✓ the risk of not having adequate governance structures to keep a company under control and effectively managed. ✓ The risk of not identifying operational risks that may have significant impact on a business early	✓ Complying with external standards. ✓ Complying with internal standards. ✓ C can stand also for controls, as the way to monitor that the business is compliant.

Table 2.3: GRC aspects (Broady and Roland, 2008)

The research of Racz, et al. (2010b) tried to combine the existing, overlapping definitions about GRC from the most of the publications and they give a final definition as:

'GRC is an integrated, holistic approach to organisation-wide governance, risk and compliance ensuring that an organisation acts ethically correct and in accordance with its risk appetite, internal policies and external regulations through the alignment of strategy, processes, technology and people, thereby improving efficiency and effectiveness' (page 112)

2.3.1. ENTERPRISE INTEGRATION AND GRC SYSTEMS

Enterprise environment due to its recent dynamic and competitive nature requires the highest profit from the existing resources. With that view, the integration of these resources is inevitable in order to achieve the business objectives. The current business practice is demanding as far as the vision on the relation between the business and IT each company uses. According to Lankhorst (2004), without such a vision, the IT infrastructure will never adequately support the business, and vice versa, the business will not optimally profit from IT developments (Lankhorst, 2004).

The alignment between business and IT is supported by a vast amount of literature, as mentioned also before, underlining the significance of both 'soft' and 'hard' components of an organisation (Henderson and Venkatraman, 1993). An integrated approach to all aspects of the enterprise is required to achieve the alignment between business and IT (Lankhorst, 2004).

Enterprise integration is defined in EN/ISO I9439 (2003) as:

Enterprise integration is the process of ensuring the interaction between enterprise entities necessary to achieve domain objectives (EN/ISO I9439, 2003).

Approaching enterprise integration can happen in various manners and different levels (Ortiz et al., 1999; Chen et al., 2008), these are:

- *Physical integration*: integration of devices, via computer networks etc

- *Application integration*: integration of software applications and database systems

- *Business integration*: co-ordination of functions that manage, control and monitor business processes

For the case of the GRC systems the integration of them can be divided in two levels according to a relevant research (Racz et al., 2010c):

i.   *the horizontal integration* (the integration of the three disciplines with each other Figure 2.2)

ii.   *the vertical integration* (the integration of GRC with business processes etc Figure 2.3).
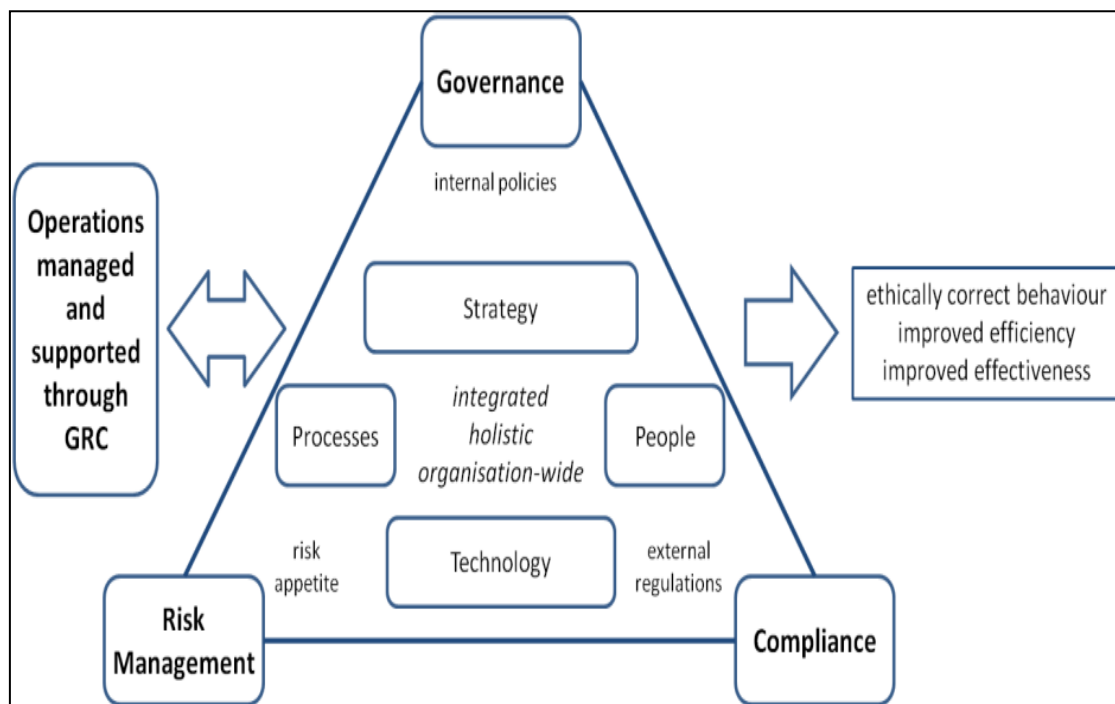
Figure 2.2 Frame of reference for integrated GRC (Racz et al., 2010c)
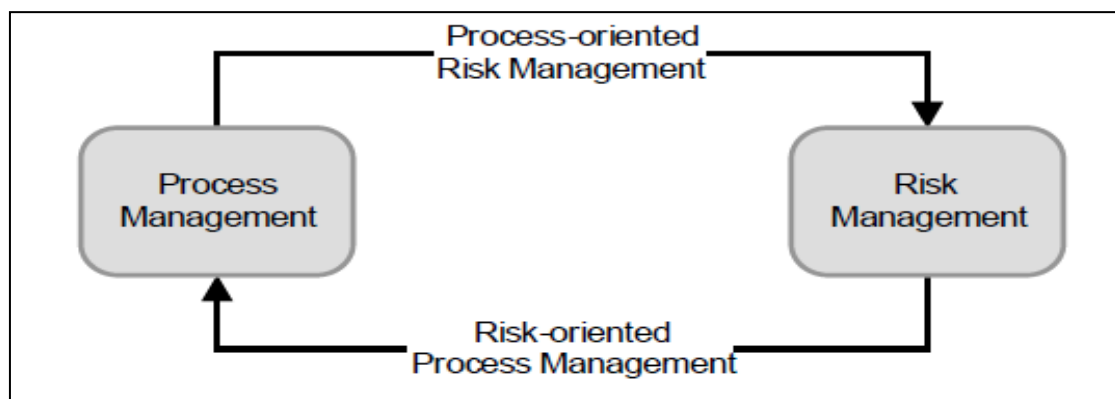
Figure 2.3 Relationships between Process and Risk Management (Rosemann and zur Muehlen, 2005)

The GRC systems area is also differentiated between four subcategories (Nissen and Marekfia, 2013) of integration by another grouping view as this is developed by Nissen and Marekfia (2013):

a) Textual integration (the integration of the individual compliance requirements and into the integration of GRC disciplines)

b) Operational processes integration (the integration is developed as the vertical integration by Racz, et al. 2010)

c) Methodological integration (the integration of the different methodological approaches from the design research point of view

d) IT integration (the integration of the different systems in a GRC environment)

2.4. ENTERPRISE SYSTEMS IMPLEMENTATION

As it was mentioned also above, enterprise systems are large and complex IT packages aiming to combine in an integrated way most of the business functions and processes within an organisation. Implementation of such systems based on standardised packages requires lot of work related to business processes and different organisations within a company (Helo et al., 2008).

The most advanced group of integrated systems are the ERP class systems that include mechanisms based on planning and forecasting, which support the management of the entire enterprise and integrate all of its activity, according to Soja (2006). The effective implementation of such a system can bring about many benefits (Shang and Seddon, 2002). These benefits according to Shang and Sheddon (2002) are categorised in five categories. The benefits of enterprise systems are given at Table 2.4 below.

Category	Benefits
Operational	1. Cost reduction 2. Cycle time reduction 3. Productivity improvement 4. Quality improvement 5. Customer service improvement

Managerial	1. Better resource management 2. Improved decision making and planning 3. Performance improvement in a variety of ways in all levels of the organisations
Strategic	1. Support business growth 2. Support business alliance 3. Building business innovation 4. Building cost leadership 5. Generating product differentiation 6. Enabling worldwide expansion 7. Enabling e-commerce
IT Infrastructure	1. Building business flexibility 2. IT cost reduction 3. Increase IT infrastructure capability
Organisational	1. Changing work pattern with shifted focus 2. Facilitating business learning and broaden employee skills 3. Empowerment 4. Building common visions 5. Shifting work focus 6. Increased employee morale and satisfaction

Table 2.4: Enterprise System benefit framework (Shang and Seddon, 2002)

However, the achievement of these above-mentioned benefits depends upon the effective implementation of the full functionality of the ERP system, which is quite difficult (Soja, 2006). Literature has proven that there are a lot of implementation projects that have failed to bring the effects expected and at the end the whole project was abandoned (Soja, 2006; Holland et al., 1999; McNurlin and Sprague, 1989). The planned budget and scope of the implementation couldn't meet the expectations of the project team and they end up failing (Botta-Genoulaz and Millet, 2006; Griffith et al., 1999; Hong and Kim, 2002; Kumar et al., 2003; Seewald, 2002).

Therefore, literature about the ERP implementations aims mostly on identifying the critical success factors of ERP implementation projects as well as learn from case studies of ERP implementation failures.

2.4.1. ERP PROJECT FAILURE AND CRITICAL SUCCESS FACTORS OF ERP IMPLEMENTATION

For Wilder and Davis (1998) the top three reasons for the failure of IT-related projects, as cited by IT managers surveyed were (Wilder and Davis, 1998):

- Poor planning or poor management

- Change in business goals during the project

- Lack of business management support

These are valid reasons for ERP projects, too. ERP project failure includes a popular topic of research within the IS community. Table 2.5 gives some of the studies conducted for this topic.

Relative literature	Research area
Davenport (1998)	Explained the failure occurrence by two reasons: the technical complexity of the solutions that requires a great deal of expertise, and the mismatch between technical specifications of the system and the business requirements of the company (Davenport, 1998)
Buckhout, et al.(1999)	Suggested that ERP difficulties stem from two issues: the company makes the strategic choices needed to configure the systems and processes, and the implementation process spins out of control (Buckhout et al., 1999)
Griffith, et al.(1999)	The relative invisibility of the ERP implementation process is identified as a major cause of ERP implementation failures(Griffith et al., 1999)
Markus and Robey (1988)	Attributed such invisibility to the unpredictably complex social interaction of IT and organisation (Markus and Robey, 1988)

Volkoff (1999)	The critical challenge of ERP implementation is believed to be the mutual adaptation between the IT and user environment (Volkoff, 1999)
Themistocleous et al. (2001)	Analysing problems of ERP implementation associated with application integration issues (Themistocleous et al., 2001)
Scott and Vessey (2002)	The majority of project failures stem from management issues surrounding the implementation, rather than technology issues(Scott and Vessey, 2002)
Umble, et al.(2003)	Dealt with the subject from another perspective. They claimed that given the level of investment and length of time needed to implement ERP systems, many companies have proceeded to implement ERP without making any return on investment (ROI) calculations (Umble et al., 2003b)
Ward, et al.(2005)	Organisational issues affecting the implementation of enterprise systems (Ward et al., 2005)
Botta-Genoulaz and Millet (2006)	ERP in reality it is very much a business subject much more related with people. Despite the benefits that can be achieved from a successful ERP implementation, project managers focus on the technical and financial aspects of a project and neglect to take into account the non-technical issues like people(Botta-Genoulaz and Millet, 2006)

Table 2.5: Literature about ERP project failures (Basoglu et al., 2007; Chen et al., 2008)

Al-Mashari, Al-Mudimigh and Zairi (2003) suggested taxonomy of critical success factors for ERP implementation. They proposed a framework which consisted of the phases of (Al-Mashari et al., 2003):

a. setting-up

b. implementation

c. evaluation

The implementation factors included (Al-Mashari et al., 2003):

- ERP package selection

- Communication between organisation and people

- Process management

- Training and education

- Project management

- Legacy systems management

- Systems interaction

- Systems testing

- Cultural and structural changes

There is also a wide range of studies trying to find the critical success factors of ERP implementations, these factors are presented in the following table (Table 2.6) in brief, as they are categorised from the literature.

Critical success factors	Literature
1. Top management support	(Al-Mashari et al., 2003; Bingi et al., 1999; Bradford and Florin, 2003; Amoako-Gyampah and Salam, 2004; Hong and Kim, 2002; Somers and Nelson, 2004; Wee, 2000; Umble et al., 2003b; Yusuf et al., 2004; Soja, 2006)
2. Users' training	(Al-Mashari et al., 2003; Bingi et al., 1999; Bradford and Florin, 2003; Amoako-Gyampah and Salam, 2004; Hong and Kim, 2002; Somers and Nelson, 2004; Wee, 2000; Umble et al., 2003b; Yusuf et al., 2004; Soja, 2006; Aladwani, 2001; Somers et al., 2003; Wilder and Davis, 1998)
3. Project communication	(Al-Mashari et al., 2003; Amoako-Gyampah and Salam, 2004; Sarker and Lee, 2003)
4. Project management	(Al-Mashari et al., 2003; Somers and Nelson, 2004; Umble et al., 2003b; Soja, 2006)
5. Integration of systems	(Al-Mashari et al., 2003)
6. Cultural differences	(Al-Mashari et al., 2003; Hong and Kim, 2002; Yusuf et al., 2004)
7. User acceptance	(Amoako-Gyampah and Salam, 2004)
8. ERP package selection	(Al-Mashari, 2002; Somers and Nelson, 2004)
9. Legacy systems	(Al-Mashari et al., 2003; Umble et al., 2003b; Soja, 2006)
10. Process re-engineering activities	(Al-Mashari et al., 2003; Bingi et al., 1999; Hong and Kim, 2002; Somers and Nelson, 2004; Umble et al., 2003b; Yusuf et al., 2004)
11. Customization of ERP	(Al-Mashari et al., 2003; Somers and Nelson, 2004; Soja, 2006)

Table 2.6: Literature about ERP critical success factors (Bradley, 2008; Soja, 2006; Basoglu et al., 2007)

2.5. GRC IMPLEMENTATION

While literature about GRC is mostly dealing with the conceptualisation and the design of integrated GRC solutions (Gill and Purushottam, 2008), attention has also to be paid to the implementation of them (Gericke et al, 2009). When analysing existing GRC literature, the topics about the identification of the "best" risk management approach are often more important than implementation topics such as the identification of activities and resources necessary to rollout a GRC solution to the productive environment (Weber et al., 2004).

The implementation aspect of GRC hardly can be found in literature (Menzies, 2006; Gericke et al., 2009). Structured recommendations or methods supporting the implementation are completely missing (Gericke *et al.*, 2009). Gericke et al (2009) support the idea that traditional approaches from software engineering or change management that address the implementation of IS cannot be applied "as is" to GRC solutions, because they do not consider certain GRC specifics because a GRC solution is not local as other IS solutions.

Gericke et al (2009) explain the previous argument as GRC solutions constitute analytical information systems compared to operational, yet integrated information systems such as e.g. ERP systems. The implementation/rollout of a GRC solution is a complex problem and the need for a comprehensive methodological support for the implementation of GRC solutions becomes obvious (Gericke *et al.*, 2009).

In order to support the implementations of GRC solutions, Asprion and Knolmayer (2013) propose a study of the assimilation of compliance software using institutional and success factor theories (Asprion and Knolmayer, 2013). Another study of the GRC implementation is that of Gericke et al (2009) that propose a 'situational implementation method for GRC' that is adaptable to certain project types and the requirements of different method users while taking the specifics of the GRC domain. The same study also identifies the GRC stakeholders and their roles. The GRC stakeholders according to Gericke et al (2009) are: a) Project Manager, b) GRC Expert, c) Top Management, d) IT Consultant; these stakeholder categories will be used for this research project to identify the more suitable interviewees at the first stages of the study (Spanaki and Papazafeiropoulou, 2013). The research of Gericke et al. (2009) is one of the few academic perspectives for the GRC implementations. The rest of

publications about GRC implementations are papers from software vendors, whitepapers from consulting companies and articles in online magazines (Racz et al., 2010a).

Hayden (2009) and Wiesche et al. (2011) highlight the importance of control methodologies and frameworks for aligning and centralising the various activities of large organisations, in order to move from traditional organisational GRC silos to an automated and streamlined version of GRC controls (Hayden, 2009; Wiesche et al., 2011a). Wiesche et al (2012) focus on the importance of control frameworks before the actual implementation of a GRC tool within the enterprises. Following also this aim, a model for evaluating control frameworks is provided before implementing a GRC software solution (Hayden, 2009). Other control framework for consideration before the implementation of a GRC software is the one presented by Racz et al (2010) at Figure 2.4 with the IT GRC Process Model and by Yu, Seo and Kim (2013) with the IT GRC-based Internal Control Framework (Yu et al., 2013).
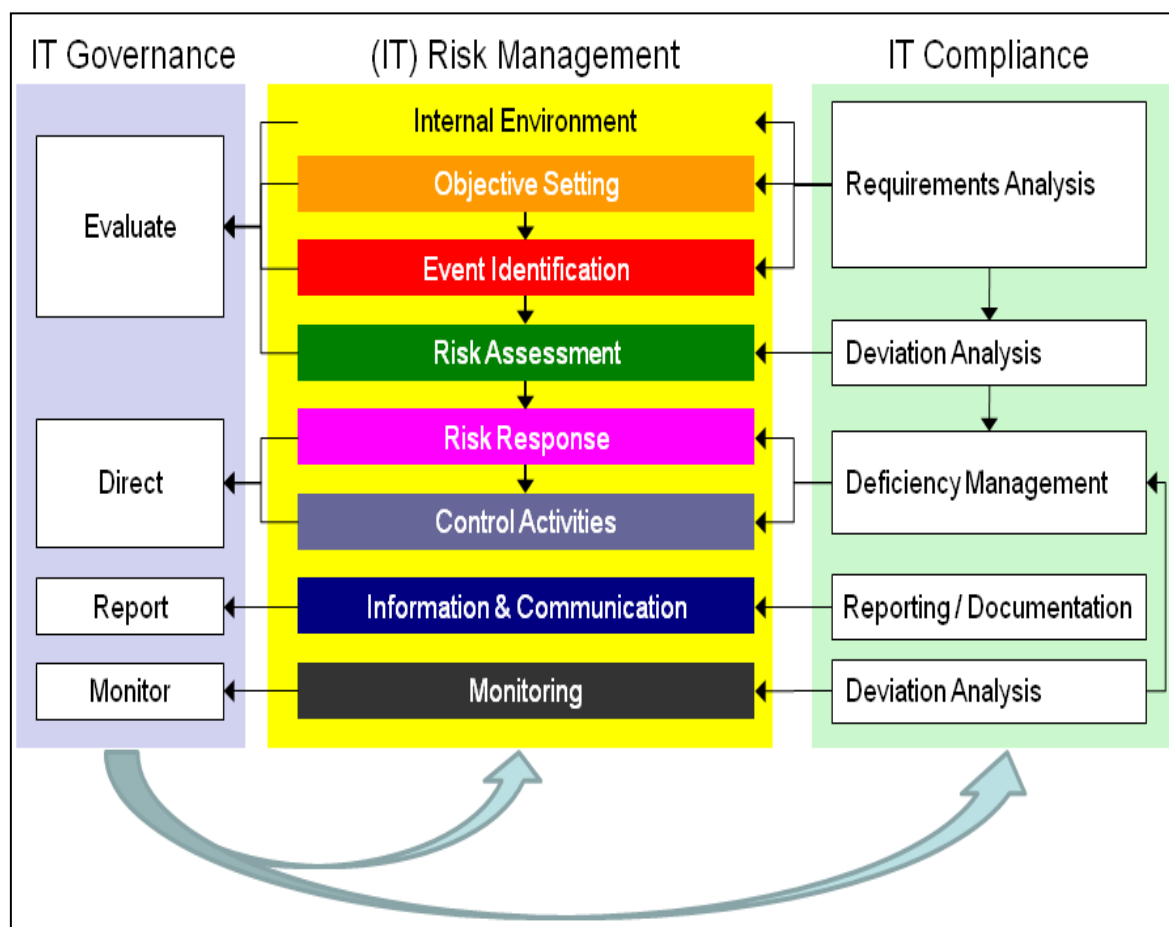
Figure 2.4: IT GRC Process Model (Racz et al., 2010a)

PricewaterhouseCoopers (2007) analyse the factors required for the successful implementation of sustainable GRC solutions. The same paper sets as a starting point 'the definition of a company-wide GRC strategy', for meeting the stakeholder's requirements and achieving company's objectives (PricewaterhouseCoopers, 2007). In the same study, the corporate vision, goals and values are recognised as influential for the GRC strategy, as well as factors like (PricewaterhouseCoopers, 2007):

- The size and structure of the company;

- The type of legal entity;

- The international markets in which the company operates;

- The countries in which the company's shares are listed;

- The industry specialisation of the company;

- The complexity of compliance requirements;

- The risk appetite of the company;

- The company's stance in relation to its competitors (with regard to GRC, whether the company aspires to market leadership or best practice among competitors); and

- The need to consider the compliance requirements of business partners (e.g. compliance with anti-corruption laws) and suppliers (e.g. compliance with environmental, employment or social standards).

PricewaterhouseCoopers (2007) presented a six- step transformation process which can help with the implementation of a sustainable GRC management approach. The transformation process is shown in Figure 2.5.
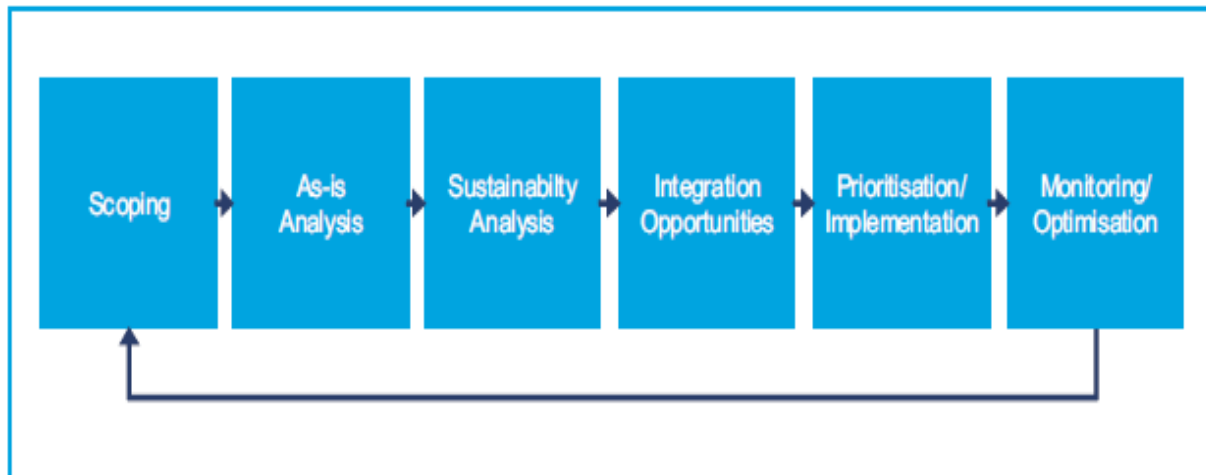
Figure 2.5: Transformation process for sustainable GRC management (PricewaterhouseCoopers, 2007)
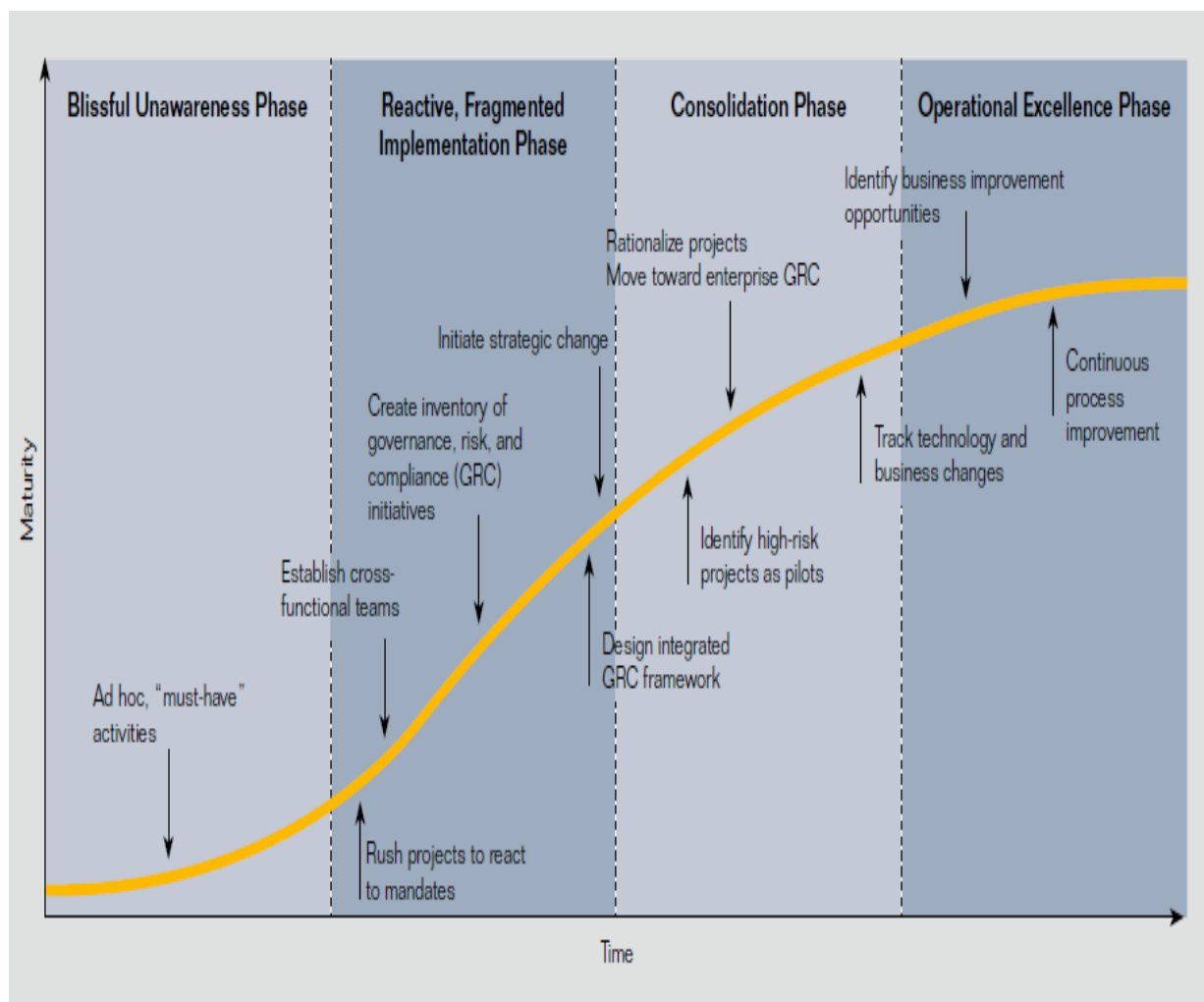
Figure 2.6: GRC Maturity Model (SAP, 2009)

SAP (2009) suggests the GRC Maturity Model (Figure 2.6) to help the organisations with mapping their readiness and chart their GRC course for meeting their unique business

requirements, weighting critical business requirements against organisational GRC maturity and top level commitment.

There is also a 10-step approach of GRC implementations by Frigo and Anderson (2009) which provides a platform to support and develop GRC implementations within the enterprises. The approach suggests the following 10 steps (Frigo and Anderson, 2009):

1. Coordinate GRC functions

2. Discuss with management and the board

3. Identify initial opportunities

4. Develop initial project plan

5. Draft a risk policy

6. Execute initial project plan

7. Revise vision and project plan

8. Finalise risk policy

9. Approve risk policy and GRC structure

10. Execute final project plan

Caston (2008) suggests on the other hand, a 5-step approach for successful GRC implementation, which includes the following steps (Caston, 2008):

1. Define what GRC means to your organisation

2. Survey the organisation's compliance and regulatory landscape

3. Determine the most logical entry point and develop a phased approach

4. Establish a clear business case, considering both short-term and long-term value

5. Determine how success will be measured

2.6. THEORETICAL PERSPECTIVES ON ENTERPRISE SYSTEMS SUCCESS

The enterprise systems implementation is largely discussed and analysed within the academic literature, and the success measures were identified through different perspectives within a great variety of studies the last decade. However, the academic literature investigating the GRC implementation includes only a few studies about GRC systems and more specifically their implementation (Racz et al., 2010a; Gericke et al., 2009; Spanaki and Papazafeiropoulou, 2013).

The following chapters will include the analysis of the GRC implementation process following an enterprise systems perspective. Therefore, the enterprise systems implementation theories that will be applied for the development of the analysis framework will be discussed here, in order to provide the backbone for the later development of the framework that will support the analysis of the GRC implementation process. The framework was developed from the themes emerging from the discussions throughout the interview field studies (in research phases 1, 2 and 3) and with the use of foundational enterprise systems implementation theories.

2.6.1. THE IS SUCCESS THEORIES

The measurement of systems success was quite a popular topic among the IS researchers the last decades (Tan and Pan, 2002). The IS success literature was initially consolidated in the Model of System Success by DeLone and McLean (1992) and Seddon's IS Success Model (1997). These two models (Figures 2.7 and 2.9) were the baseline for the later success models as these were developed by the IS community (DeLone and McLean, 1992; Seddon, 1997). The IS Success Models were updated the last years; in order to assist the emerging IS requirements (Petter et al., 2012). The research by Petter et al (2012) gives the different IS Success Measures for researchers throughout the last 60 years; this study focuses on the different understanding of 'IS success' based on the needs of the organisations.

The two IS Success models, as these were introduced in the late 90s (Seddon, 1997; DeLone and McLean, 1992) were consisted of several dimensions for the IS success. The initial IS success model was introduced by DeLone and McLean and was enhanced later by different

studies that provided models based on the initial one. The DeLone and McLean model defined six distinct dimensions of IS success:

1. system quality,

2. information quality,

3. use,

4. user satisfaction,

5. individual impact, and

6. organisational impact

This way of dividing the IS Success in six major independent categories was dominant among the researchers of the IS field; and also provided a comprehensive framework for evaluating the IS success (Urbach and Müller, 2012).
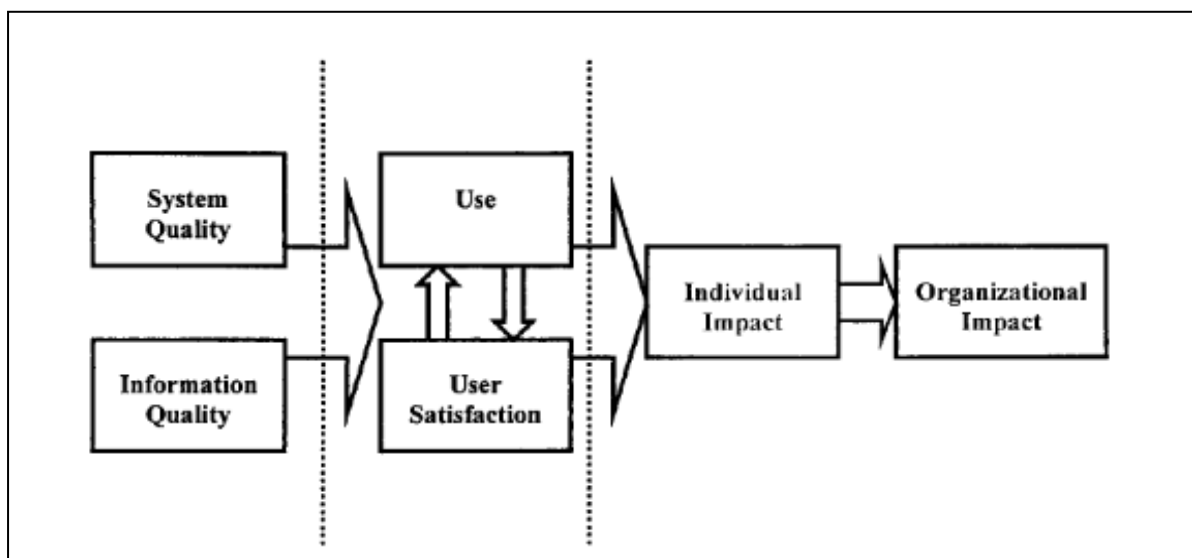
Figure 2.7 DeLone and MacLean IS Success Model (DeLone and McLean, 1992)

A number of IS researchers claim that the IS Success Model was incomplete; and they suggest more dimensions for this model or present alternative success models (Urbach and Müller, 2012; Seddon, 1997). DeLone and McLean updated this model after ten years of their first model (DeLone, 2003). The primary differences between the original and the updated model are (Urbach and Müller, 2012):

(1) the addition of service quality to reflect the importance of service and support in successful e-commerce systems;

(2) the addition of intention to use to measure user attitude as an alternative measure of use; and

(3) the collapsing of individual impact and organizational impact into a more parsimonious net benefits construct.

The updated model consists of six interrelated dimensions of IS success: information, system, and service quality; (intention to) use; user satisfaction; and net benefits. The arrows demonstrate proposed associations between the success dimensions.
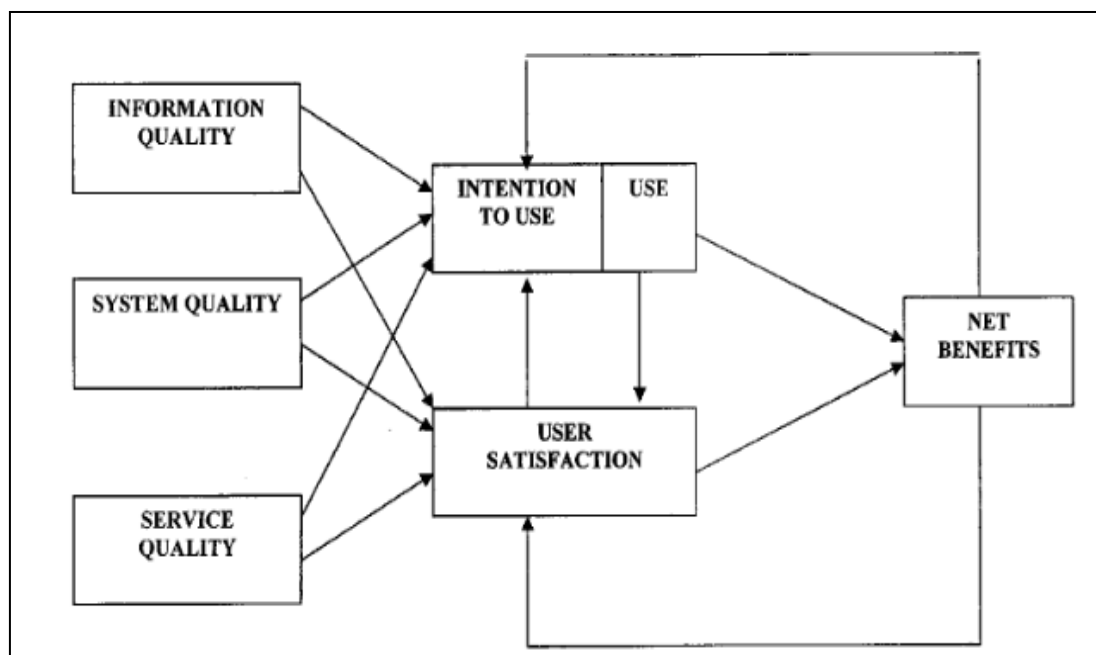
Figure 2.8 The updated DeLone and MacLean IS Success Model(DeLone, 2003)

The main difference between Seddon's and DeLone and McLean's model is the definition and placement of IS Use as Seddon argues that use must precede impacts and benefits, but it does not cause them (Rai et al., 2002; Seddon, 1997). Seddon (1997) considers IS Use to be a behaviour as the user is seeking for net benefits from an information system and therefore models IS Use as a resulting behaviour of IS success. The model contains a direct path leading from System Quality and Information Quality to both Perceived Usefulness and User Satisfaction. Perceived Usefulness impacts User Satisfaction (Rai et al., 2002). The IS Success Model and the Partial Behaviour Model of IS Use are linked by a path from User Satisfaction to Expectations of Net Benefits from Future IS Use, which, in turn, impacts IS Use (Rai et al., 2002; Seddon, 1997).
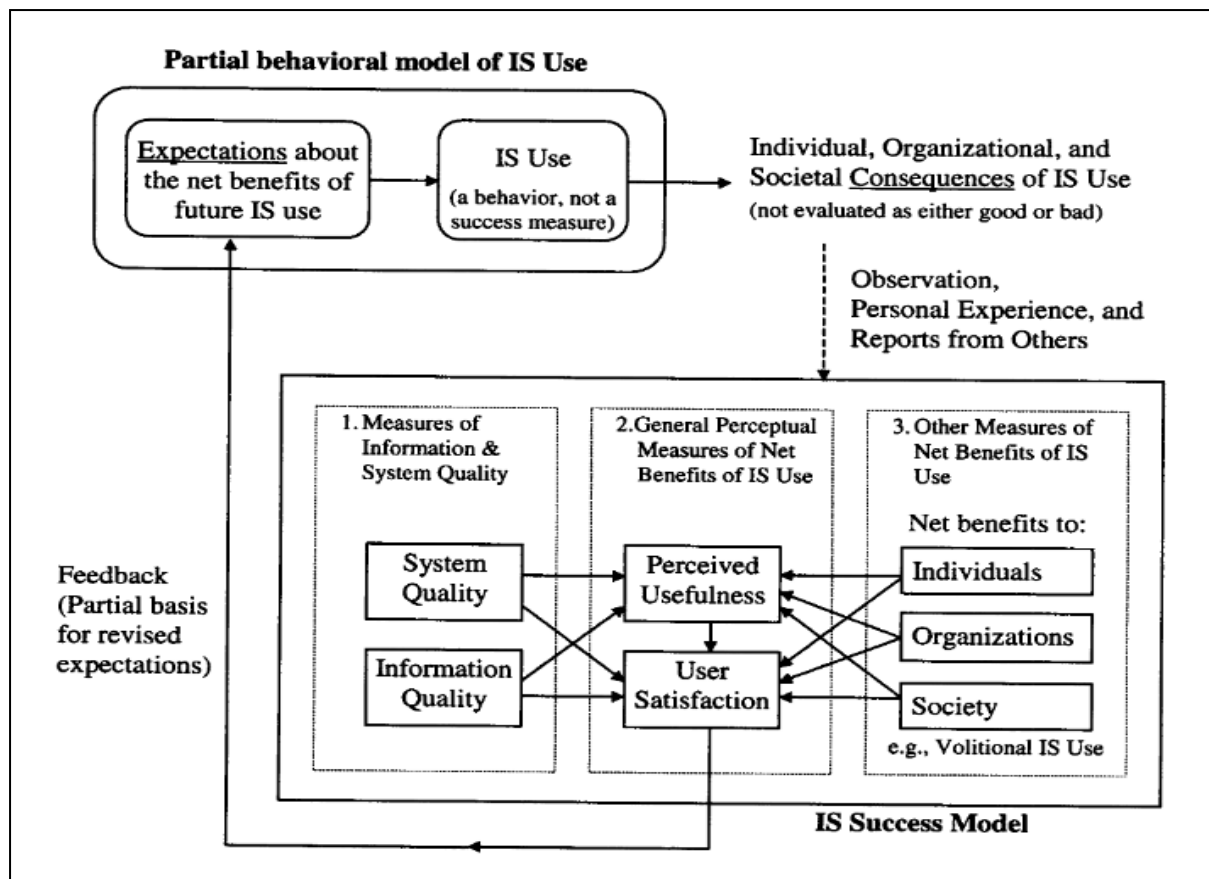
Figure 2.9 Seddon's IS Success Model (Seddon, 1997)

The enterprise architecture studies suggested measures of IS systems success of the updated DeLone and McLean Model as well as other measures that can assist in identifying potential Enterprise Architecture organisational impacts (Espinosa et al., 2011; Niemi and Pekkola, 2009; DeLone, 2003). Seddon's Model of Success (1997) was revised and used by later studies and was more specialised in enterprise system success (Seddon et al., 2010; Seddon, 1997; Urbach and Müller, 2012). Other models of success used parts of the above models or the whole models to assess or measure the IS success (Urbach and Müller, 2012).

The enterprise system success used frameworks based on these two initial IS models as these can be applied to business implications of IS (Petter et al., 2008; DeLone, 2003). Most of the implementation success studies of enterprise systems capitalised on these IS models (Davenport, 1998; Davenport, 2000; Davenport et al., 2004; Soh et al., 2000; Lee and Lee, 2000; Baskerville et al., 2000; Tan and Pan, 2002). The study herein used the three enterprise value drivers of Davenport et al. (2004). The three value drivers of Davenport et al. (2004) were based on aspects of the two initial IS success models, however they are

more specified for the enterprise value of IS systems (Davenport et al., 2004; Seddon et al., 2010; Davenport, 1998). The choice of these enterprise value drivers is based on the following arguments.

Although several researchers have acknowledged that Enterprise Systems create business value especially in enabling operational efficiency, not much research has been carried out in the area of ES Success (Bhattacharya and Seddon, 2011) despite claims from vendors and consultants. According to the same study of Bhattacharya and Seddon (2011), there is little research on how such systems can assist the adopting organisation to support, execute or even revise the business strategy. However, Bhattacharya and Seddon (2011), developed a model for assessing the business value. This model of business value enhances the principles of the three 'enterprise value drivers' as these were suggested by Davenport et al. (2004). According to that model, ES can create business value beyond operational efficiency, like in enabling innovation or making strategic decisions (Bhattacharya et al., 2012); however this model focuses more on ERP software and the success of such solutions. Therefore the initial three enterprise value drivers as these were developed by Davenport et al (2004) will be used for this study as they fit to general ES value and can support the research of GRC systems as well.

2.6.2. THE DRIVERS OF ENTERPRISE SYSTEM SUCCESS

As it was discussed in the previous section, this research focuses on the enterprise value drivers (Davenport et al., 2004). Davenport et al (2004) propose three drivers for measuring if the enterprise solution meets the enterprise's business vision. These three value drivers are given in figures 2.10 and 2.11 and they are analysed as follows (Davenport, 2000; Davenport et al., 2004):

Integrate – This driver focuses on how the enterprise solution will unify and harmonise the data and processes with an organisation's unique environment, and how the systems will be used to better connect organisational units and processes, as well as customers and suppliers.

Optimise – This driver focuses on how the enterprise system standardises most processes using best practices embodied in the software, how it molds and shapes processes to the

unique or strategic needs of the business, and how it ensures that processes flow and fit with the systems themselves.

Informate – This driver focuses on how organisations "informate" when they use information to transform work. In the context of an enterprise solution, organisations provide information ('informate') by transforming the enterprise solution data into context-rich information and knowledge that supports the unique business analysis and decision-making needs of multiple work forces.
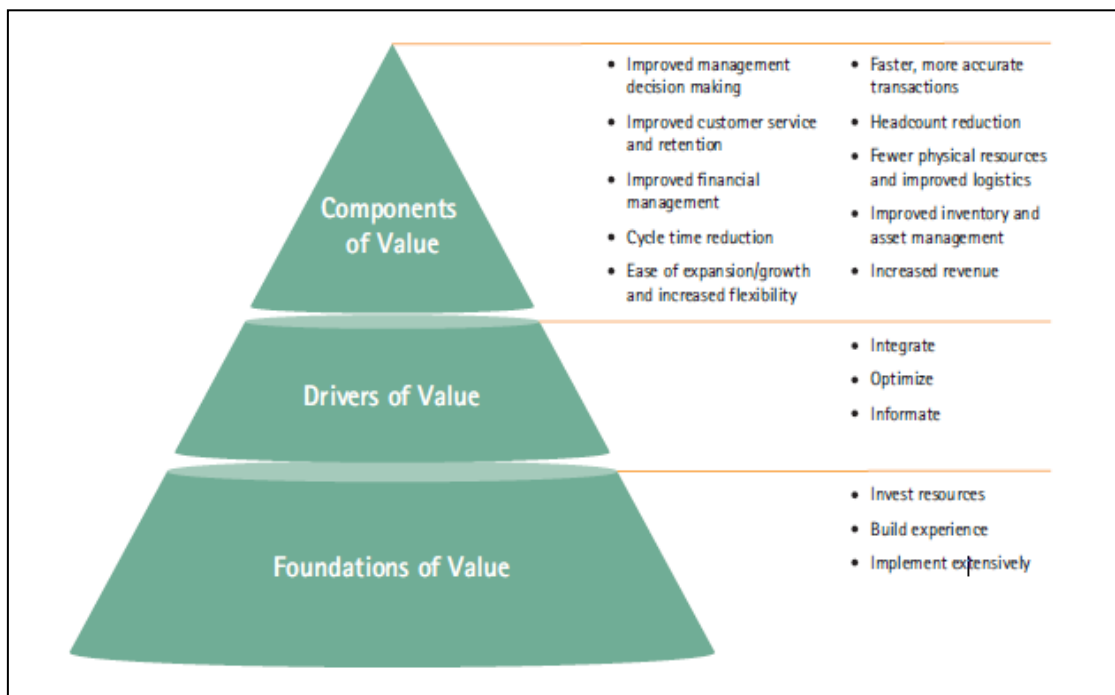
Figure 2.10: Achieving value from Enterprise Solutions (Davenport et al., 2002)
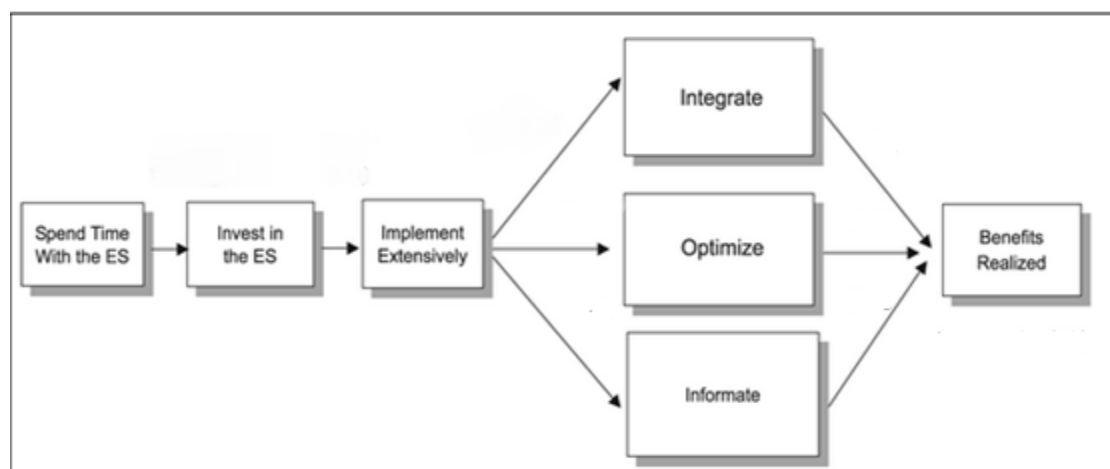
Figure 2.11: Key factors driving realisation of Enterprise System value (Davenport et al., 2004)

The above three drivers (integration, optimisation and information) are required for achieving value from the implementation of the enterprise systems (Davenport et al., 2004) and therefore they will be further investigated for the GRC implementation process.

2.6.3. ENTERPRISE SYSTEMS EXPERIENCE LIFECYCLE

The research about implementation lifecycles includes the lifecycle of Parr and Shanks (2000) who divided the whole ES adoption process into three general phases and five sub-phases within the second phase, as these are described in the table below (Table 2.7)

Phase	Sub-phases
1. Planning	
2. Project	a) Set up b) Reengineering c) Design d)Configuration e) Testing and Installation
3. Enhancement	

Table 2.7 The ES adoption phases (Parr and Shanks, 2000)

Another approach of the ES lifecycle proposed six implementation phases as these are presented at Table 2.8 below. Somers and Nelson (2004) distinguished six implementation phases grounding their approach in the six-stage model of IT diffusion developed in 1990 by Cooper and Zmud (Somers and Nelson, 2004; Cooper and Zmud, 1990).

Phase name	Description
1. Initiation	Companies justify the need for adopting an ES system, choose the actual enterprise system, and define business needs and goals
2. Adoption	The definition of the project takes place and the model design is created. Issues related to project management are investigated. Project participants are selected. Usually, the relationship between the client and the provider begins at this stage
3. Adaptation	This is the main implementation stage where the technical team translates the solution design into reality.
4. Acceptance	The aim of this phase is to deliver and run the system.
5. Routinisation	This phase is part of the post-implementation phase.
6. Infusion	This is the post-implementation period where the company experiences the full potential of the ES operation

Table 2.8: The Six-stage Model of IT diffusion (Somers and Nelson, 2004; Themistocleous et al., 2011; Cooper and Zmud, 1990)

There are also other experience lifecycles proposed by researchers in the literature of enterprise systems implementations (Bancroft et al., 1998; Ross et al., 2006; Markus and Tanis, 2000). In most cases, the enterprise system projects share the same implementation process concept (Robey et al., 2002), the basic difference is in the way researchers divide the implementation process in different steps, the most common implementation cycles include five or six (Bancroft et al., 1998; Ross et al., 2006; Cooper and Zmud, 1990) and four steps (Markus and Tanis, 2000) respectively. The ES lifecycles support the research for analysing the ES implementation process and they can assist in identifying similarities and differences among the ES adopters (Soja, 2006; Soja et al., 2011; Themistocleous et al., 2011).

Among these different experience cycles, in the proposed study is used the one developed by Markus and Tanis (2000) as this lifecycle suited more to the emerging concepts about the implementation phases as these were described throughout the interviews. The enterprise experience lifecycle as it is proposed by Markus and Tanis (2000) includes four implementation phases as these are presented in Table 2.9. This choice is based on the fact that this specific model is easier to use for predicting or explaining an organisation's actual enterprise system achievements and successes in a systematic way (Teoh et al., 2008). This experience cycle allows crucial implications to be revealed at each stage of the implementation so that we could identify potential problems and provide suggestions to mitigate or resolve issues before they are propagated to the next implementation stage (Teoh et al., 2008).

Stage	Description
1. Project Chartering	Decisions defining the business case and solution constraints.
2. Project Configuration	Getting system and end users 'up and running.'
3. Shakedown	Stabilising, eliminating 'bugs,' getting to normal operations
4. Onwards and Upwards	Maintaining system, supporting users, getting results, upgrading

Table 2.9: The Enterprise Experience Lifecycle (Markus and Tanis, 2000; Themistocleous et al., 2011)

Markus and Tanis (2000) have identified the following four phases in an enterprise experience life cycle (Figure 2.12):

Phase I (Chartering Phase):

The chartering phase comprises decisions leading up to the funding of an enterprise system. Key players in this phase include vendors, consultants, company executives, and IT specialists, although the precise constellation of players may vary.

Key activities include

- Building a business case for enterprise systems,

- Selecting a software package (though this decision may be deferred until the project phase),

- Identifying a project manager, and approving a budget and schedule.

Phase II (Project Phase):

The project phase comprises activities intended to get the system up and running in one or more organisational units. Key players include the project manager, project team members (often nontechnical members of various business units and functional areas), internal IT specialists, vendors, and consultants. Again, the constellation will vary, depending on the decision to do the project in-house, with outside assistance, or on an outsourced basis.

Key activities include:

- software configuration

- system integration

- testing

- data conversion

- training

- rollout

Phase III (Shakedown Phase):

The shakedown phase is the organisation's coming to grips with the enterprise system. The phase can be said to end when "normal operations" have been achieved (or the organisation gives up, dis-installing the system). The project (or consulting) team may continue its involvement or may pass control to operational managers and end users and whatever technical support it can muster.

Activities include

- bug fixing and rework

- system performance tuning

- retraining

- staffing up to handle temporary inefficiencies

Phase VI (Onward and upward Phase):

The onward and upward phase continues from normal operation until the system is replaced with an upgrade or a different system. It is during this phase that the organisation is finally able to ascertain the benefits (if any) of its investment. Key players include operational managers, end users, and IT support personnel (internal or external). Vendor personnel and consultants may also be involved, particularly when deliberations about upgrades are concerned.

Characteristic activities of this phase include

- continuous business improvement

- additional user skill building

- post- implementation benefit assessment

However, these "typical" activities are often not performed.
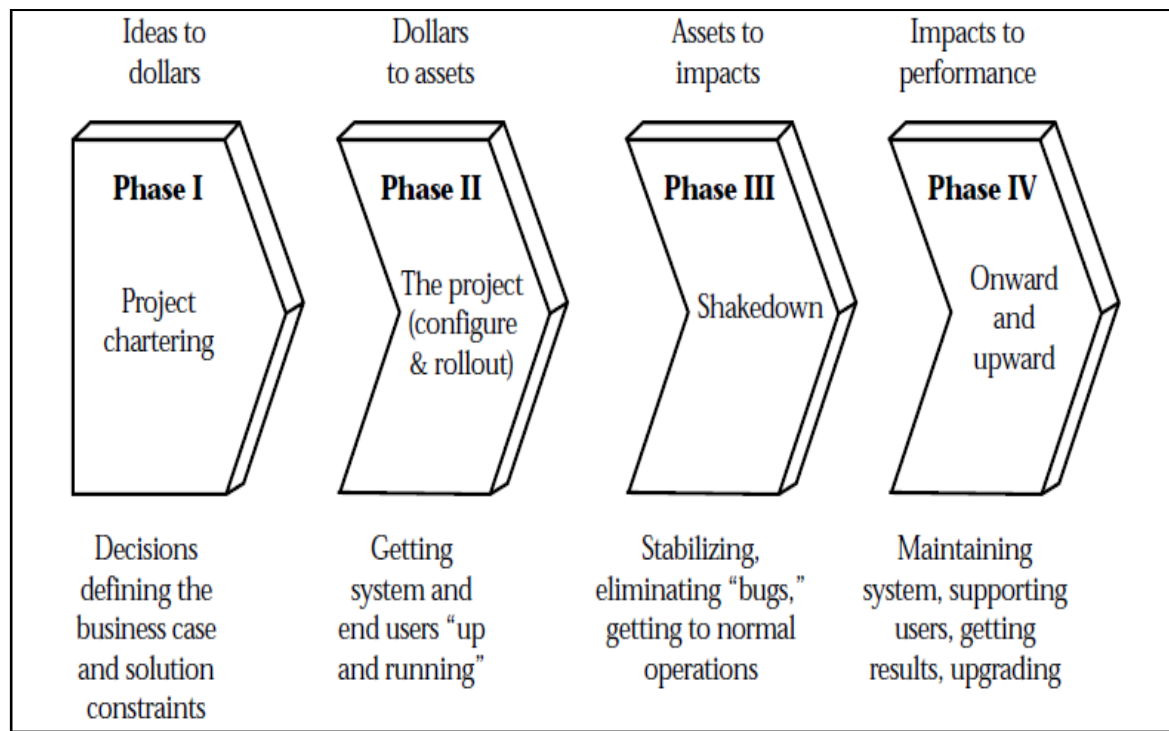
Figure 2.12: Enterprise Systems Experience Cycle (Markus and Tanis, 2000)

2.7. A FRAMEWORK FOR THE ANALYSIS OF THE GRC IMPLEMENTATION PROCESS

The literature about ES and GRC implementations that was mentioned in the previous sections assisted in identifying the main aspects that should be considered before, throughout and after the implementations. These aspects are mainly: the goals and objectives of the implementation, the purpose and key stakeholders, as well as requirements prior the implementation, critical success factors and problems throughout the implementation. These categories of ES aspects will be used to form the investigation questions for the 1st and 2nd phases of the field research. The semi-structured interviews used the following aspects that should be investigated for the ES and more specifically for GRC implementations. These aspects should be investigated in order to gain a more detailed view for the organisation interested in such technological solutions.

(a) the goals and objectives of these projects,

(b) purpose of the system and key stakeholders

(c) requirements prior the implementation,

(d) critical success factors ,

(e) problems/ barriers throughout the implementation process.

Furthermore, except the implementation aspects, the enterprise value of such implementation projects should be considered. In the previous sections it was made obvious that enterprise system success is a very important part of their implementation process. Although the research about enterprise systems has developed and analysed thoroughly the implementation frameworks and evaluated the success of them, the GRC implementations are missing an analysis about their success and the value they give to enterprises. More specifically, the enterprise value factors, proposed by Davenport et al.(2004) will be used as keystones for developing the framework, the focus will be on these three drivers of enterprise systems value as presented by Davenport, et al. (2004):

a.   Integrate

b.   Optimise

c.   Informate

These three drivers of enterprise value will be analysed through the four phases of enterprise system experience cycle presented by Markus and Tanis (2000). These four phases are the following:

Phase I: Project Chartering

Phase II: The project (configure and rollout)

Phase III: Shakedown

Phase IV: Onward and upward

The theoretical background used for this study used theoretical background from the enterprise systems literature, as the GRC software is a newly developed integrated enterprise system designed to follow the GRC disciplines. The seven implementation aspects

of this system used from the theoretical background, assisted in developing the initial exploratory questions for the first phases of interviews. These questions supported the development into the broad understanding of the GRC field as well as forming a common ground for the assimilation to the broad area of enterprise systems. The assimilation highlighted the importance of this system for the enterprises and also the need for a specialized understanding of its aspects. The second theoretical background used from the literature of enterprise systems is the adoption lifecycles. The adoption lifecycles provided a structure to divide the phases followed for the implementation of such systems and each phase could be analysed in more detail. The final theoretical element was the enterprise value, which is divided in three drivers. These three drivers provided a basis for analysis for the critical concepts that should be understood in order to follow a successful implementation process for the GRC systems.

The above three theoretical elements (Figures 2.13) will provide the baseline for the data collection and analysis of the data. Therefore, a framework that analyses the GRC implementation process is proposed here and will be used as a basis for developing the data collection through the field investigation in a systematic way.

The framework described above will be employed in the case of ES and GRC implementations. Initially the implementation aspects will help in organising the data from the first and second phase of the fieldwork, and will help to present and form them, for the assimilation, which will follow in Chapter 4. The framework will also provide a way of categorising the themes and subthemes emerging from the dataset and a tool for the analysis of the main aspects of GRC implementation. Therefore, the implementation of GRC will be analysed further in all the four phases in Chapter 5 using the ES experience lifecycle, while trying to identify various interests and activities of the stakeholders as well as barriers and critical success factors associated with the GRC Implementation Experience.
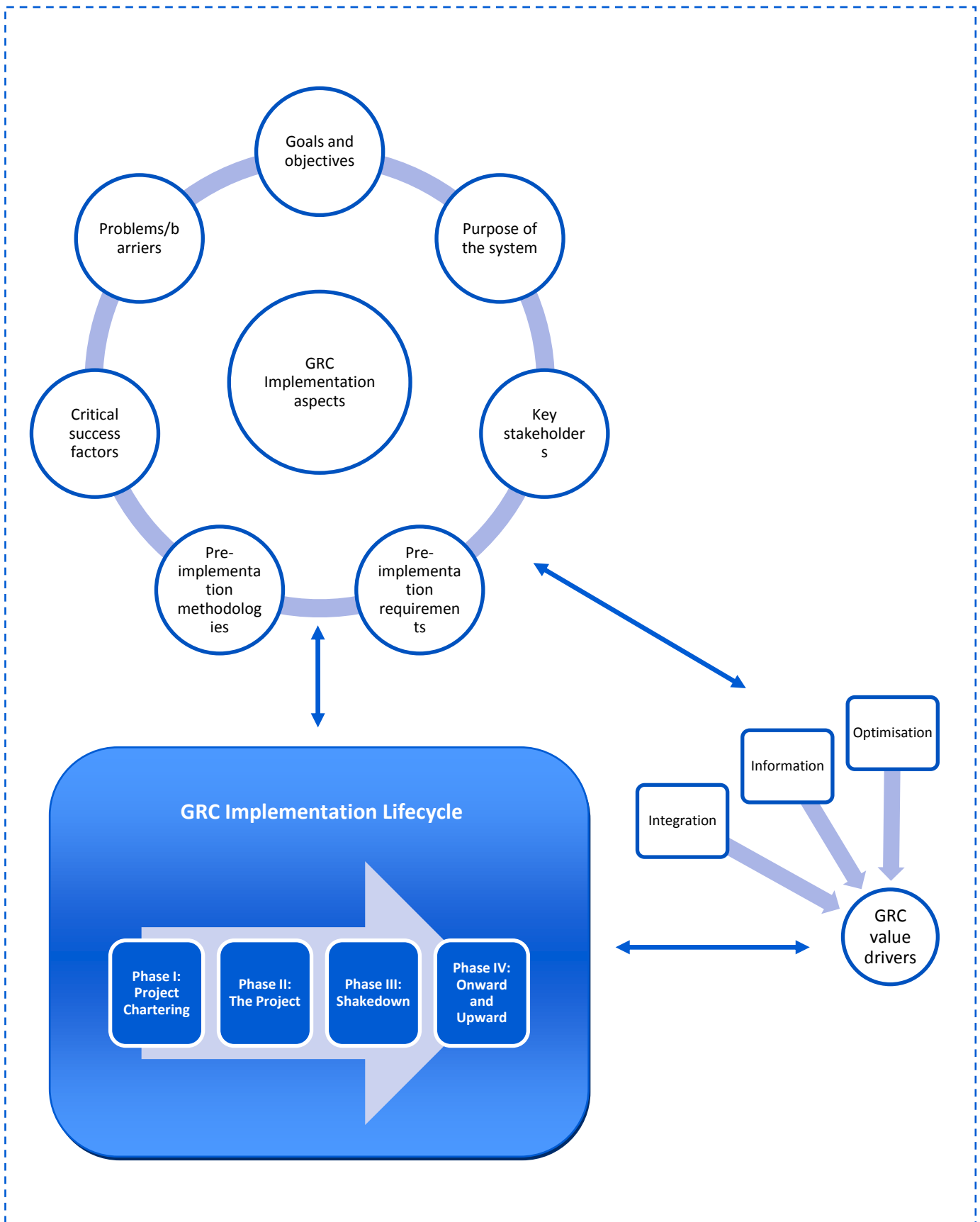
Figure 2.13: Theoretical background chosen for the analysis of the GRC systems implementation (analysis framework for the GRC systems implementation)

2.8. CONCLUSION

The literature review chapter presented the principles of the enterprise systems, the GRC systems and their implementation. The focus of this chapter is gaining a better understanding of the enterprise systems perspective that will be followed in this research for the GRC implementation process. Moving further, the chapter includes a description of the analysis framework proposed by this study and is based on the enterprise success theories. The framework described above will be employed in the case of ES and GRC implementations. Initially it will help in forming the data from the first and second phase of the fieldwork, for the assimilation, which will follow in Chapter 4. The framework will also provide a way of categorising the themes and subthemes emerging from the dataset and a tool for the analysis of the main aspects of GRC implementation. Therefore, the implementation of GRC will be analysed further in all the four phases in Chapter 5 using the ES experience lifecycle, while trying to identify various interests and activities of the stakeholders as well as barriers and critical success factors associated with the GRC Implementation Experience.

CHAPTER 3: METHODOLOGY

CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION

The IS research community has an increasing interest in organisational and social issues associated with the development and implementation of computer-based information systems (Benbasat et al., 1987; Yin, 2009; Markus, 1997). However, field study research method is a widely used qualitative research method in IS research (Benbasat et al., 1987; Orlikowski and Baroudi, 1991). In addition to that, field study research typically combines several qualitative data collection methods such as interviews, documentation and observations. Coolican (2009) points out that field study research has the advantage of capturing natural behaviour as it occurs in everyday life (Coolican, 2009).

In keeping with the above methods, this research will use an interpretive, qualitative field study approach. The interpretative approach will allow the researcher to understand and analyse the implementation process of GRC packages. Firstly, detailed investigation of the field of enterprise systems implementations will give insight about the implementation of enterprise systems in general and then the field study strategy will be followed in order to explore the implementation in GRC software environments. The exploratory phase will be through the literature overview, analysis of previous studies and primary research investigation. Furthermore, the main data collection technique will involve semi-structured interviews with the stakeholders involved in various roles related to GRC initiatives. The data collected will be analysed through thematic analysis, coupled with problem and benefit analysis about the implementation of GRC solutions.

This chapter will discuss the epistemological and ontological research assumptions. Additionally, it will examine the selected research methodology and present the specific research approach followed. In order to combine the methods that were used and maximise their benefits, a research process approach will be followed.

3.2. RESEARCH APPROACH

Information Systems research is considered as a multi-disciplinary social field related to Information Technology (Land, 1992). However, information technology is not the only aspect of Information Systems research; other aspects are related to natural sciences, mathematics, engineering, behavioural sciences and linguistics. Thus, Galliers (1991) argues that there is no single framework that encompasses all the domains of knowledge needed for the study of Information Systems (Galliers, 1991).

One of the most difficult decisions for a researcher of Information Systems is the selection of the appropriate research approach as there is not a universal solution for this problem (Galliers, 1991). Information Systems are not rooted in a single theoretical perspective; there is a wide range of philosophical assumptions regarding the underlying nature of phenomena under investigation (Orlikowski and Baroudi, 1991). Therefore, there is a plethora of research approaches and strategies for the researchers to choose from.

Orlikowski and Baroudi (1991) also pay great attention to the selection of the appropriate research approach. they state that the researchers should ensure that they adopt a perspective compatible with their own research interests and predispositions, while remaining open to the possibility of other assumptions and interests (Orlikowski and Baroudi, 1991). Orlikowski and Baroudi (1991) while discussing the various research approaches also adopt the basic beliefs underlying the construct of research, as these were developed by Chua (1986). These beliefs are related to physical and social reality, knowledge and the relationship between knowledge and the empirical world (Chua, 1986). They are presented at the table below (Table 3.1).

Beliefs about	Explanation
Physical and Social Reality:	
Ontology	Whether social and physical worlds are objective and exist independently of humans, or subjective and exist only through human action
Human Rationality	The intentionality ascribed to human action
Social Relations	Whether social relations are intrinsically stable and orderly, or essentially dynamic and conflictive
Knowledge:	
Epistemology	Criteria for constructing and evaluating knowledge
Methodology	Which research methods are appropriate for generating valid evidence
The Relationship between Theory and Practice:	The purpose of knowledge in practice

Table 3.1: Beliefs underlying the conduct of Research (Orlikowski and Baroudi, 1991)

Information Systems research includes several research philosophical approaches, these are critical, interpretivism and positivism as these are described in the following section(Klein and Myers, 1999).

Positivism according to Orlikowski and Baroudi (1991) can be classified the approach where there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from a representative sample to a stated population. Observations of the phenomena under investigation can be made objectively and rigorously in positivist approach (Galliers, 1991).

Another Information Systems approach is interpretivism, which assumes that our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools, and other artefacts (Klein and Myers,

1999). Interpretive research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as the situation emerges (Kaplan and Maxwell, 1994).

Critical Information Systems research approach includes the research if the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light (Klein and Myers, 1999). Critical research seeks to be emancipatory in that it aims to help eliminate the causes of unwanted alienation and domination and thereby enhance the opportunities for realising human potential (Alvesson and Willmott, 1992; Hirschheim and Klein, 1994).

3.2.1. INTERPRETIVE RESEARCH APPROACH

The research approach selected for the purposes of this thesis is the interpretive research approach. The first two chapters indicated that there are a lot of social, political and cultural issues related to the GRC Implementation Experience. Therefore, the study of the GRC implementation process cannot be separated from its organisational and cultural context.

Additionally, the close involvement of the researcher with the phenomena under investigation made the separation between facts and values impossible and it felt natural that the interaction with human subjects of the enquiry would change the perception of both parties (Walsham, 1995). Specifically, the researcher was in close contact with the participants in the research as there was additional observation of the whole process within the field where they were implementing the systems and was familiar with the nature of their work.

Additionally, comparatively interpretivism is the most appropriate research approach as can be justified by the following reasons. Positivism will be less suitable research approach for this study; as there is no evidence of formal propositions, quantifiable measures of variables, or hypothesis testing in this specific research. There are not many academic studies on the GRC implementation process, as it is a newly developed area of study within the area of information systems (Racz et al., 2010b; Spanaki and Papazafeiropoulou, 2013).

Critical approach can be applied as a supporting theory for the research; however, the emphasis in this thesis will be on interpreting the GRC Implementation Experience.

3.2.2. QUALITATIVE RESEARCH

Kaplan and Maxwell (1994) refer to 'Qualitative Research' as a range of approaches that differ significantly among themselves, but that share some defining aspects and purposes. More specifically, they explain qualitative research as (Kaplan and Maxwell, 1994):

"Qualitative research typically involves systematic and detailed study of individuals in natural settings, instead of settings contrived by the researcher, often using open-ended interviews intended to elicit detailed, in-depth accounts of the interviewee's experiences and perspectives on specific issues, situations or events".

Thus, it appears that quantitative research methods are inappropriate for this specific study, as the study will include interviews with stakeholders about their experience of the GRC implementation process and their perspective about issues arising when they implement such systems. This specific study will require rich empirical data, in order to provide a better understanding as far as the GRC implementation process is concerned.

The main reason for selecting the qualitative approach for this thesis is because this approach is suitable for studying things in their natural settings, attempting to understand phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 2000).

The types of the research that the qualitative approach is appropriate are described as follows (Marshall and Rossman, 1999):

1. Research that examines in depth into complexities and processes

2. Research on little-known phenomenon or innovative systems

3. Research that seeks to explore where and why policy and local knowledge and practice are at odds

4. Research that cannot be carried out experimentally for practical or ethical reasons

5. Research on informal and unstructured linkages and processes in organisations

6. Research on real, as opposed to stated, organisational goals

7. Research for which relevant variables have yet to be identified

This research can be identified in the 2nd and 5th categories, as GRC systems are innovative systems and their implementation process involves informal and unstructured linkages and processes in organisations.

Denzin and Lincoln (2000) describe the qualitative research process in five phases, these are (Denzin and Lincoln, 2000) :

Phase 1: The researcher

During the qualitative research, complex traditions and research perspectives emerge for the researcher. These can build the research history, guidelines and constrains of the study. The ethics and politics for the specific study should be also examined as well as role of the researcher in the study. The role of the researcher will be further examined at section 3.4.1 which follows.

Phase 2: Theoretical paradigms and perspectives

Qualitative research is conducted through beliefs based on highly abstract principles that combine ontology beliefs, epistemological beliefs and methodological beliefs. These beliefs comprise the 'interpretive framework' or 'paradigms' and shape the researchers view of the world and how the researcher acts in this world. The paradigm followed in this research and the reasons for its selection are explained in 3.2.2 of this section.

Phase 3: Research strategies

The research design set the research question and the aim of the study, and it supports the development of what information is required for the explanations of the research questions, it also assists the strategy selection for extracting this information. Therefore, a research design describes a flexible set of guidelines that links the paradigms with the strategies of enquiry and the methods for collecting empirical data. The next section (section 3.3), makes clear the research design followed in this study and explains the steps followed in this study.

Phase 4: Methods of collection and analysis

The qualitative researcher has challenges as to choose between several methods for collecting empirical material such as; interviews, observations, and documents. They also need to analyse the sources by using different approaches as content, themes, narrative, and semiotic strategies. Additionally, the researcher has to find out the way of managing and interpreting the selected material. The data collection process and sources is included in section 3.4.2 of this chapter and analysed in more detail in chapter 4.

Phase 5: The art, practices and politics of interpretation and presentation

This phase of the qualitative research process is where the researcher has to make public research interpretations and produce a public text that comes to the reader. The evaluation criteria should be applied with a variety of criteria to evaluate the practices and to show the quality of the results. The data analysis approach is described in section 3.4.3. The presentation of the data is included in chapters 4 and 5. The discussion about the data is presented in the chapter 6 of this thesis.

The phases of qualitative research defined by Denzin and Lincoln (2000), will be used in figure 3.1 to depict the selection of the process followed in this study and the highlighted objects indicate the choice made in this research.

Phase 2: Theoretical paradigms and perspectives
Positivism
post-positivism
Interpetivism
Constructivism
Hermeneutics
Feminism
Racialised discourses
Critical theory and Marxist models
Cultural studies
Queer theory

Phase 3: Research Strategies (Study design)
Case study
Field study
Grounded theory
Ethnography
Participant observation
Phenomenology
Ethnomethodology
Life history
Historical method
Action and applied research
Clinical research

Phase 1: The Researcher
History and research traditions
Conceptions of self and other
Ethics and research

Phase 4: Methods of collection and analysis
Interviewing
Observing
Documents, Archival records
Visual methods
Autoethnography
Data management methods
Computer-assisted analysis
Textual analysis
Focus groups
Applied ethnography

Phase 5: The art, practices and politics of interpretation and presentation
Thematic analysis
Practices and policies of interpretation
Writing as interpretation
Criteria for judging adequacy
Policy analysis
Evaluation traditions
Applied research

Figure 3.1: Qualitative Research process used in this study

3.3. RESEARCH DESIGN –4 STEP RESEARCH PLAN

The methodology applied to carry out this research consists of four steps these will be described below. In order to combine the methods that were used and maximise their benefits, a research process approach will be followed. The research framework will be developed for the GRC implementation analysis; and will focus on analysing the emerging themes and sub-themes stemming from the dataset. The description of the research methodology steps is following with a brief analysis of each step (Figure 3.2).

Step 1: The first step involved the development of a project plan and the building of semi-structured interviews based on the literature review of enterprise systems. It also included ES and GRC implementation general investigation about the theoretic aspects that could motivate the research. This step assisted in gaining a broad understanding of the enterprise systems field in general and their implementation process, in order to highlight the importance of GRC systems within the enterprises. The general theoretical background supported the development of a research plan and designing the next steps with a more focused approach. As the literature for GRC systems and their implementation is limited, the broad understanding of the field could be gained through the first two field investigation phases, as developed in step 2.

Step 2: The second step included the two first field-investigation phases. More specifically it involved the development of semi-structured interviews based on general information about the ES implementation. The interviewees were identified from the literature review and were divided in four groups of ES implementation stakeholders. The output coming from the data analysis was the 'ES implementation aspects' and was used for the assimilation to the GRC aspects later. Furthermore, this step included the second field investigation phase, where the GRC stakeholders were interviewed. The output of the data analysis was the 'GRC implementation aspects'. These aspects were used for the assimilation of ES and GRC implementation, which provided the ground for structuring the third investigation phase. This step served the assimilation purposes in order to gather data about the aspects of GRC systems and identify the similarities and differences these systems share with other enterprise systems. The importance of this step stems from the need to highlight the importance of considering GRC specific characteristics through their

implementation and also understanding the relationship of these systems to other enterprise systems, as the approach will follow general theoretical background for enterprise systems. These theories were used for a more specific approach to GRC systems, in order to analyse their implementation (their lifecycle and the enterprise value). This specific approach was developed after the analysis of the data gathered in the third step, as is developed below.

Step 3: This step included the third field investigation phase. The third investigation phase was divided in two parts. In the first part the GRC implementation was investigated in order to identify the GRC implementation lifecycle. The lifecycle phases were identified through the analysis of the data gathered at this part. The second part of this investigation phase included structured interviews related to the GRC enterprise value drivers and produced an analysis of these drivers throughout the whole adoption lifecycle. These two theoretical elements of the enterprise systems literature assisted in the development of the interviews for the third field investigation as well as in the analysis of the GRC implementation from the interview data gathered.

Step 4: The fourth and last step included the development of the 'GRC implementation analysis framework' that was built by the outputs that came from the analysis of the previous steps. This framework assisted in analysing further the data and developing a discussion about their results. This discussion produced the conclusions and the contributions of this research.

The purpose of the research design serves the need of design flexibility and it is very important for qualitative methods. Marshall and Rossman (1999) suggest that the research design addresses topics as: the overall strategy and rationale; site selection; population selection or both; the researcher's role; data collection methods; data management; data analysis strategy; trustworthiness features; and a management plan (Marshall and Rossman, 1999). For Janesick (2000) the research design is consisted of three phases (Janesick, 2000):

a) _the warm- up phase_: where decisions about the design are made at the beginning of the study as what to study, research questions and the research strategy (chapters 1,2,3)

b) *the total workout phase*: where the decisions about the design are made throughout the study as some background work and actual execution of the fieldwork (chapters 2,4,5)

c) *the cool-down phase:* where decisions are made at the end of the study as analysing and presenting the findings (chapters 4,5,6)
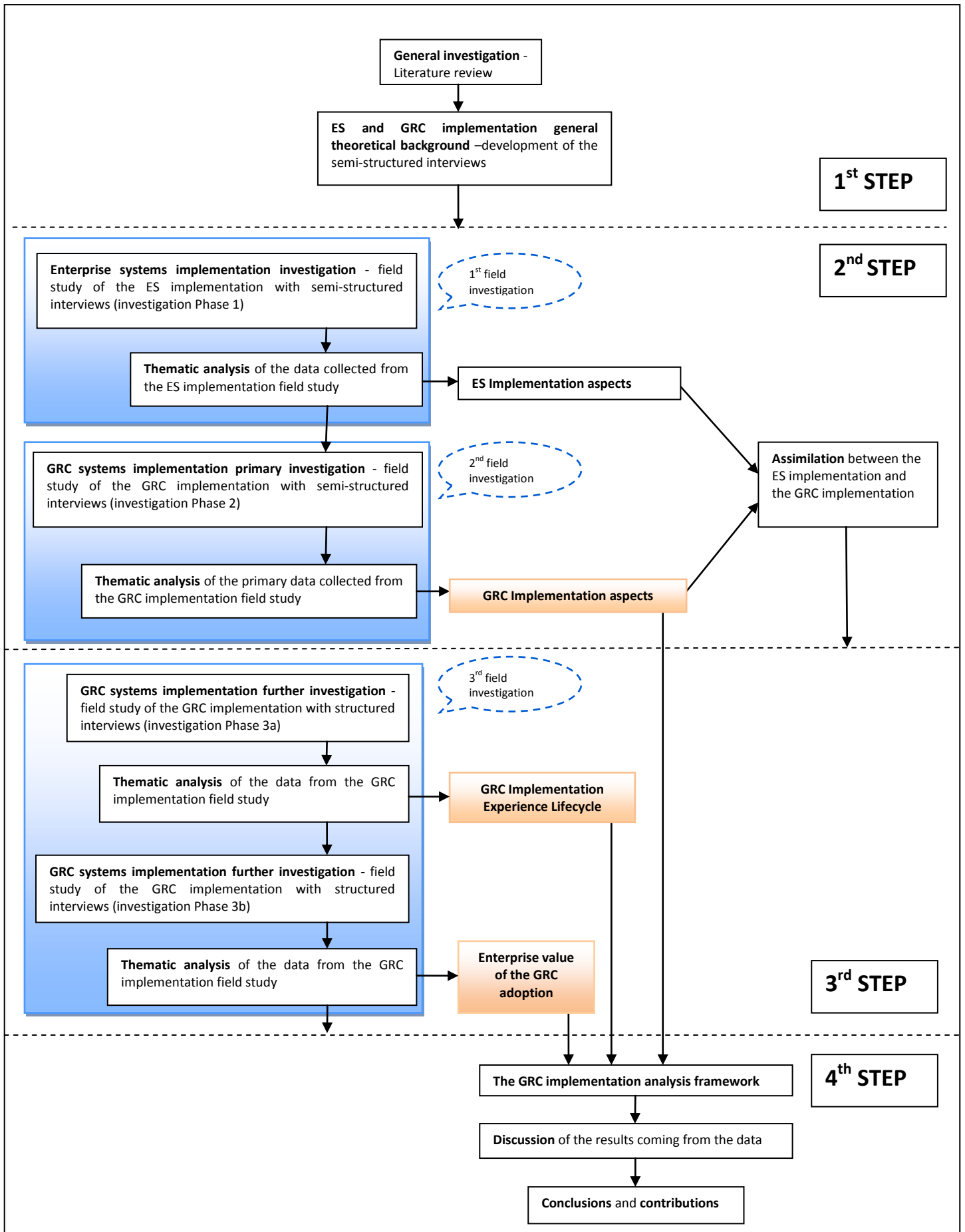
Figure 3.2: Structure of the 4-step research plan

3.3.1. RESEARCH STRATEGY - FIELD STUDY

The previous section presented the warm-up phase of qualitative research design, when the research strategy is selected. Research strategies can be ethnography, case study, field study or field research and grounded theory (Denzin and Lincoln, 2000). For this study, the field research approach was selected. Field studies can generate valid interpretive knowledge, as these explain humans in their social setting (Orlikowski and Baroudi, 1991). Field studies are carried out in the 'field' which is the natural environment of the people studied and gives the opportunity to capture natural behaviour as it occurs in everyday life (Coolican, 2009). The field study strategy was used to divide the research in three phases and further progress with these phases, as the data collected from each phase were analysed and used to form the interviews and the setting for the next phases.

The decision to design this research in three phases is based on the intention to examine the key aspects of enterprise systems implementation in general and afterwards investigate these aspects in the case of GRC implementation. Initially there was a need to identify the similarities, differences of these implementation processes, and distinguish the importance to follow a more specific approach for the implementation of GRC systems. Once the similar and different aspects of the implementation process were identified, the next step was to further analyse the GRC implementation process in more detail (in Chapter 5). The more detailed analysis of the GRC implementation process will produce a clear view of this process and will provide a theoretical and practical background, as well as a guide for the organisations and the people intending to implement such systems in the future.

The first phase included semi-structured interviews with ES implementation stakeholders, with experience in the field of the implementation of such systems. The researcher could better define and understand the whole implementation process, and after this stage, the framework for research was developed for the further study of the implementation process. The second phase included semi-structured interviews with GRC stakeholders involved in the GRC implementation experience, in order to understand end investigate the whole process as all stakeholders can experience it. The last phase involved structured interviews, with all the GRC implementation stakeholders, in order to confirm the findings and get in-depth and more detailed insight about the GRC implementation process.

3.3.2. SAMPLING STRATEGY – MIXED PURPOSEFUL SAMPLING TECHNIQUES

As it is also presented above in the research plan, the research was divided in three phases of field study. The first phase included a multiple field study about the enterprise system implementation process. The multiple field study assisted in identifying and familiarising with the implementation process of different enterprise systems (ERP, Accounting Information Systems and Risk Management systems) and gaining a better understanding of what general guidelines should be followed in order to have a successful outcome. This phase took place from February 2011 until November 2011. During this time, 8 people involved in implementation projects of enterprise systems were interviewed about the implementation experience for these systems in various organisations and contexts (each of the participants has participated in 3-10 implementation projects). The findings of this study were used as a basis for the GRC field study. This study was conducted from November 2011 until May 2012 and included interviews with stakeholders of GRC implementation projects: 4 people in total, for each category of stakeholders.

The first two field studies provided data for the assimilation of the general enterprise systems implementation to GRC implementation process. The similarities and the differences that were highlighted (these will be shown in Chapter 4), provided a baseline for the further study of the GRC implementation process which took place after the third phase of the field study, conducted through structured interviews with the GRC stakeholders about the GRC implementation process. The third phase took place from September 2012 until January 2013 and included interviews with stakeholders of GRC implementation projects: 4 people in total, for each category of stakeholders, this phase provided the final data for this research.

Phase	From	To	Duration	Interviews	Observation
1st Phase	February 2011	November 2011	8 months	8 interviews	7.5 hours
2nd Phase	November 2011	May 2012	7 months	4 interviews	14 hours
3rd Phase	September 2012	January 2013	5 months	4 interviews	21.5 hours

Table 3.2: The three phases of the research

A very complex issue in qualitative research is associated with sampling as there are many variations of qualitative sampling described in the literature and much confusion and overlapping of types of sampling (Coyne, 1997). As improved quality of research synthesis is critical; this can be achieved through the informed decisions about sampling (Suri, 2011). Even though several qualitative researchers have recommended purposeful sampling for qualitative research, the published literature holds sparse discussion on how different strategies for purposeful sampling may be applied to a research synthesis (Suri and Clarke, 2009; Suri, 2011). In primary research, Patton is frequently cited as an authority on the topic of purposeful sampling (Patton, 1991). Patton (2002) describes purposeful sampling as:

The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases yields insights and in-depth understanding rather than empirical generalizations (Patton, 2002).

According to Suri (2011) purposeful sampling requires access to key informants in the field who can help in identifying information-rich cases. The research at hand used 'mixed purposeful' sampling techniques in order to investigate the GRC implementation in-depth. Mixed purposeful sampling technique combines two or more sampling techniques to adequately address their purpose (Suri and Clarke, 2009). The study herein employed initially a theory-based sampling approach to identify the stakeholders that should be interviewed and once the implementation stakeholders were identified, an intensity sampling approach was followed in order to collect rich data about the study. Patton (2002) referring to intensity sampling addressed the cases selecting for intensity sampling were 'excellent or rich examples of the phenomenon of interest, but not highly unusual cases. Cases that manifest sufficient intensity to illuminate the nature of success or failure, but not at the extreme' (Patton, 2002)

The cases selected for the GRC implementation study were 'key implementation stakeholders' as these were identified by the theoretical background from the study of Gericke et al (2009) and these categories of stakeholders were used to identify the most suitable interviewees. The interviewees were selected based on their experience in ES and

GRC implementation projects (the number of projects participated and the number of years in the field of implementations of integrated software developed by large vendors in the field such as SAP, Oracle etc).
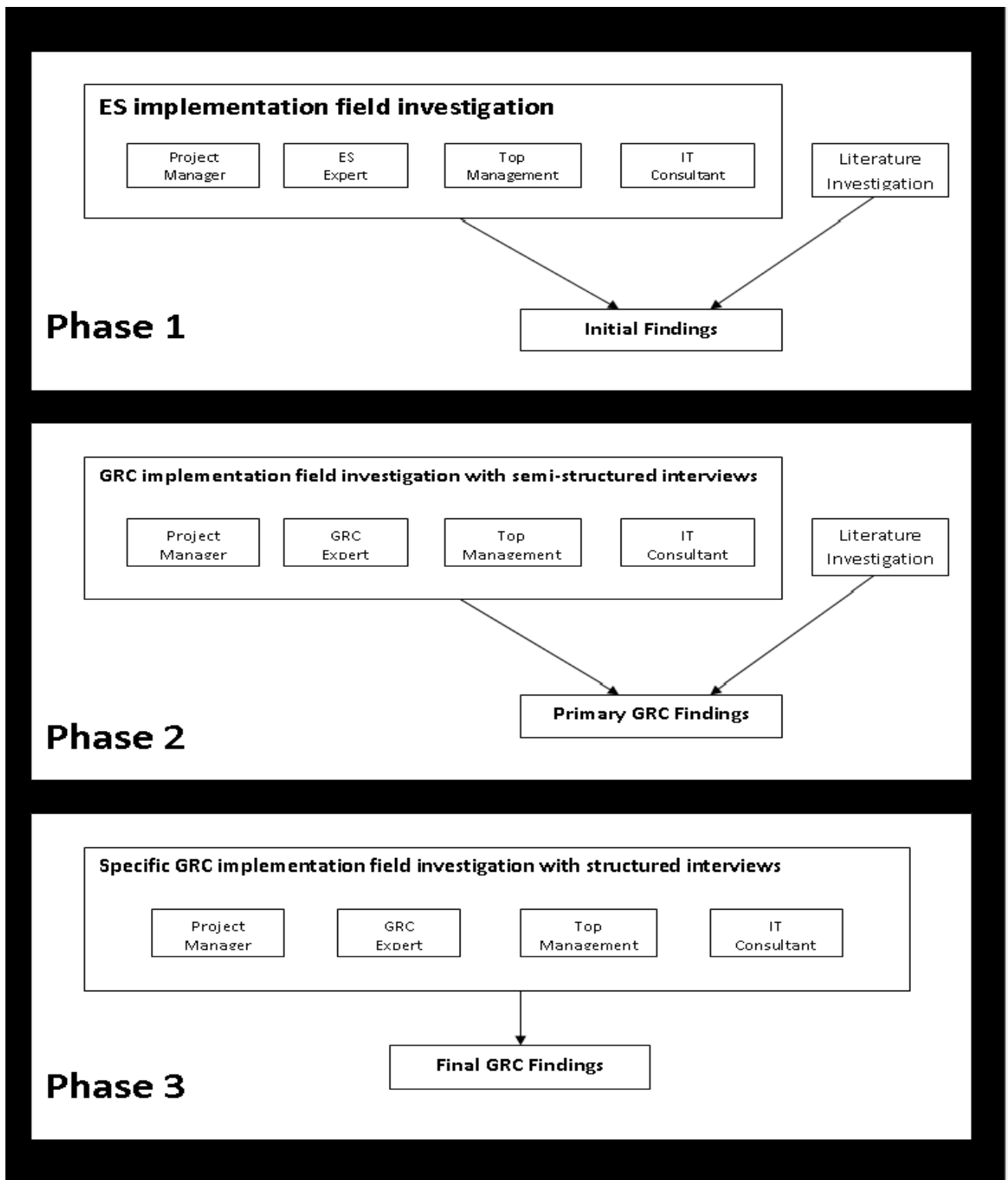
Figure 3.3: The three phases of this research

3.3.3. ALTERNATIVE RESEARCH APPROACHES

The sections above justified the combination of field study strategy in an Interpretive, qualitative research approach setting. However, this section will present alternative research approaches, in order to further justify the use of the most appropriate research method for this thesis.

The research of the GRC implementation process could be conducted with the use of a quantitative research approach, rather than a qualitative. The quantitative research approach would give the tangible success factors and benefits from the implementation of such a system; the word 'tangible' refers to the money and time saved, the number of risks identified and avoided, etc. However, these 'tangible' results of the implementation of a GRC system in organisations, cannot give the whole experience of the process and the critical success factors. The objective of this research is to get an insight of the GRC implementation process, and more specifically, to understand the whole experience of the implementation, for such a research a qualitative approach will be more appropriate. Furthermore, the researcher had to get an initial feeling about the GRC implementation and implementations of other integrated systems and that need was met by the literature of enterprise system implementations and whitepapers and reports about GRC implementation from vendors and consulting agencies.

The use of ES implementation literature and GRC whitepapers and reports also avoided the use of grounded theory that could also be employed in this study. If the questions were not present in the interviews (semi-structured and structured interviews were conducted), as well as the fact that there is extensive literature about ES implementations (that was the first phase of the interviews), the grounded theory approach could be applicable at this study. For the previous reasons the grounded theory approach was not employed, however it could be considered in a different setting.

The use of case study approach could also be considered in such a research; however, the research included discussion about the experience of the participants with ES and GRC projects and not a specific implementation project, within a particular enterprise setting for that reason the case study approach was discarded.

The previous sections also provided justification for the use of field studies, especially for subjects in their early stages. The use of this specific approach could be alternatively involving research in one or multiple case studies of organisations in order to investigate a number of viewpoints coming from different sources and examine different organisational settings. Such an approach could also provide a general understanding of the GRC implementation process. Instead of that, the field study, as presented in this thesis could provide in-depth viewpoints of the stakeholders involved in the process, and could allow a more systematic and constructive stakeholder analysis.

3.4. CONDUCT OF EMPIRICAL WORK

This section will include three sets of issues for discussion, involving the role of the researcher, interviewing techniques and reporting methods, for the conduct of empirical work, as these were suggested by Walsham (1995). These three issues were highlighted as important for the conduct of empirical interpretive studies (Walsham, 1995).

3.4.1. ROLE OF THE RESEARCHER

The role of the researcher according to Walsham (1995) can be defined as: *"Interpretive researchers are attempting the difficult task of accessing other people's interpretations, filtering them through their own conceptual apparatus, and feeding a version of events back to others, including in some cases both their interviewees and other audiences".*

The researchers have to view their own roles, as two different roles can be identified, namely that of the outside observer and that of the involved researcher (through participant observation or action research). The research at hand will follow the outside researcher approach, however the researchers inevitably influence the interpretations of the people researched. Despite the above the 'outside observer' stance will be followed as it preserves more distance from the personnel in the field organisations. As a result of this, the researcher does not have a personal stake in various interpretations and outcomes, and the personnel will often be relatively frank in expressing their views with the researcher (Walsham, 1995).

The main disadvantage of the 'outside observer' stance could be as described by Walsham (1995) the fact that the researcher will not be present on many occasions and will not get a direct sense of the field experience from the inside, another problem will be that the researcher will not have access in certain data and issues related with confidentiality and sensitivity issues. These issues will be considered by the researcher, and will not influence the research, as the research topic will not use confidential data, and the stakeholders/interviewees will be asked about their experience with the GRC implementation in general, and any examples of specific sensitive data will not be used in this study.

3.4.2. TECHNIQUES OF DATA COLLECTION

Marshall and Rossman (2000) divide the qualitative data collection techniques in four categories. These categories are the following:

1. Participation in the setting

2. Direct observation

3. In-depth interviewing

4. Review of the documents and material culture

In this research as it was also depicted in phase 4 at figure 3.1 in a previous section (section 3.2.2), the techniques that will be followed for the data collection are interviewing, observing, documents and archival records and data management methods. These techniques are discussed in more detail highlighting their use in this specific research.

INTERVIEWS

Interview is the most common technique of data collection for qualitative research (Denzin and Lincoln, 2000) and a very useful methodological tool, which can take many forms. In addition, the interpretive stance, which is followed at this research, acknowledges interviews as the most appropriate stance for sourcing the data. Walsham (1995) highlights the benefits of interviewing as a data collection method as: a) interpretations from the

participants regarding the actions and events and b) the views and aspirations of themselves and other participants. Additionally, it allows the researcher to check again and examine the interpretations of their fellow participants as well.

Fontana and Frey (1994) and Denzin and Lincoln (1998) categorise the interviews in structured, semi-structured and unstructured. In this study, both semi-structured and structured interviews were used, in order to gather the data. As it was mentioned in a previous section (section 3.3.1), the data collection was divided in three phases. These three phases of data collection will be analysed further in this section.

The first phase of the data collection was based on the methodology of field studies. According to that the research methodology is based on studying empirical observations and data at their natural setting, as it is addressed by Coolican (2004). This research methodology allows building the knowledge of 'process, sequence and change pertaining to organisations, positions and social interaction'. The research builds upon the broad understanding and experience of people (stakeholders) involved in enterprise systems implementation projects, more specifically the focus of selection of the interviewees was on maximising the diversity. By maximising the diversity, the sample will provide different and varying data. The research shares the enterprise systems implementation process as a common unit of analysis, but uses different roles within the implementation projects as contexts. The qualitative data analysis was conducted in 8 stakeholder interviews, and the results of this analysis were confirmed at the end of the first phase.

The diversity of the sample was achieved by including a broad range of roles in the ES implementation projects as these are related to GRC roles. The systems (ERP systems, Risk Management systems, Accounting Information systems etc) and disciplines related to these solutions were relevant to the activities and the nature of the GRC systems. Since the different roles within the enterprise systems implementation provide different focal points, the interviews were two for each stakeholder for covering different roles using mixed purposeful sampling. The stakeholders were working for different implementation projects and they have experience between 3 to 10 years in the implementation projects of these specific systems. The companies they work are in UK and Greece, and they also had

experience in implementation projects in other countries like India, Cyprus, other Balkan countries (Bulgaria etc). The table below gives further information about each participant.

Participant ID	Length	Language	Experience
ES expert 1	1 h 10 min	English	3 years
ES expert 2	1 h 20 min	English	6 years
ES Project Manager 1	0h 40 min	English	4 years
ES Project Manager 2	0h 45min	English	8 years
Top Manager 1	1h 05min	English	8 years
Top Manager2	1h 30 min	English	10 years
IT Consultant 1	0h 45 min	English	5 years
IT Consultant 2	1h 20 min	English	4 years

Table 3.3: Project roles and Interviewees of the first phase

The second and third phases also were based on the methodology of field studies as it was also stated in the previous section of the first phase. The research shares the GRC systems implementation process as a common unit of analysis, but uses different roles within the implementation projects as contexts. The qualitative data analysis was conducted in 4 stakeholder interviews at the second phase of data collection, and the results of this analysis were confirmed and enriched with structured interviews as a third phase.

The research was conducted in the two last phases of data collection and aimed to get insight about the implementation process of GRC software initiatives. In more detail, the second phase of the investigation involved the development of the semi-structured interviews based on general information about the GRC implementations. The GRC implementation project stakeholders were identified by Gericke et al. (2009) as: a) Project Manager, b) GRC Expert, c) Top Management, d) IT Consultant. These GRC stakeholders were interviewed in general aspects of GRC implementations and any possible issues that could arise throughout the whole implementation process. Furthermore, this phase

included literature investigation about the enterprise system implementations and their success factors.

The diversity of the sample was achieved by including a broad range of roles in the implementation projects as these are related to GRC roles. The stakeholders were working for different implementation projects and they have experience between 5 to 11 years in the implementation projects of these specific systems. The companies they work are in UK; however, the GRC implementation projects they have participated are worldwide. The table below gives further information about each participant. These participants were interviewed with structured interviews at the third phase of the data collection as well.

After each field study investigation, there was a confirmation of the data results from the interviewees as part of the data evaluation process. All the interviews were tape recorded and transcribed. Recording helped the researcher to interpret the data without time pressure. The limited time for the interviews due to the participants' busy schedule, could not support note-taking processes from the researcher, therefore the tape-recording method was proved as a very crucial step throughout the interview process.

Participant ID	Length for 2nd phase	Length for 3rd phase	Language	Experience
GRC expert 1	1 h 25 min	0h 18 min	English	8 years
GRC Project Manager 1	1h 40 min	0h 32 min	English	11 years
Top Manager1	0h 45min	0h 15min	English	6 years
IT Consultant 1	1h 45 min	0h 23 min	English	5 years

Table 3.4: Project roles and Interviewees of the second and third phase

OBSERVATIONS

The observation as a data collection technique involves noting and recording of events, behaviours and artefacts in the social setting chosen for the research study (Marshall and Rossman, 1999). Observations can provide important information throughout the interviews as it can also provide more outputs coming from the body language of the interviewees.

Every day world observations as a technique is very common for people, and can support the interpretation of actions and reactions of the other members of the society (Adler and Adler, 1994). The observation technique was used in this study throughout the interviews that took place at the stakeholder's business premises as well as the environment where the stakeholders were participating in a GRC implementation project during the period when the interviews took place. According to Patton (2002) understanding fully the complexities of many situations, direct participation in and observation of the phenomenon of interest may be the best research method; therefore the study at hand applied observation methods for understanding the GRC setting and evaluating the data from the interviews.

The observations of the GRC environment as well as the whole GRC implementation process could provide the required background for the researcher in order to evaluate the insights as these were expresses by the interviewees and also assist in the description of the setting. The observational data facilitated the evaluation process of the interviews, where the researcher could experience and observe the GRC implementation process and confirm the validity of the GRC implementation experience as it was described by the interviewees

DOCUMENTS AND ARCHIVAL RECORDS

Reviewing documents can provide the background information and the setting of the researched phenomenon (Marshall and Rossman, 1999). The document review involves interpretative actions of the evidence provided by texts and artefacts as well as project reports and whitepapers (Denzin and Lincoln, 2000). This method combined several data such as business reports, diagrams, organisational records and vendor's system manuals and also whitepapers from consulting companies.

DATA MANAGEMENT

The data management technique in this study followed the four steps of data management as these were proposed by Boeije (2009). These steps were followed in order to ensure that high quality data will be accessible and can assist the transparency and the opportunity for the others to see how this data were treated and analysed throughout the investigation and the primary analyses (Boeije, 2009; Miles and Huberman, 1994).

It is depicted at Table 3.5 the four steps (Boeije, 2009) and how they were applied to this study as part of the data management technique.

Data management techniques at this study	
First step:	The organisation and storage of different data files in secured areas and easily retrieved
Second step:	The transcription of audio and visual sources
Third step:	Taking out irrelevant data and information that can identify participants and breach the confidentiality agreement
Fourth step:	Manipulation of data manually or assisted by a research software (NVivo)

Table 3.5: Data Management techniques (Boeije, 2009)

3.4.3. DATA ANALYSIS METHOD

THEMATIC ANALYSIS

The method used for the analysis of the data was thematic analysis as proposed by Boyatzis (1998) and Braun, and Clarke (2006). The data from the interviews were analysed through the various phases of Table 3.6 and initial codes were generated from the data, leading to themes. Further thematic analysis was carried out to indicate the sub-themes of these themes and divide them into more defined sub-groupings. The first five phases will be analysed at sections 4 and 5 and will help in building the framework for the analysis of GRC implementation process. The sixth phase will comprise the analysis of the implementation process.

Phase 1:	Familiarising with the code
Phase 2:	Generating initial code
Phase 3:	Searching for themes
Phase 4:	Reviewing themes
Phase 5:	Define and naming themes and sub-themes
Phase 6:	Producing the analysis

Table 3.6: Phases of thematic analysis (Braun and Clarke, 2006)

The primary data from the interviews of the first field study were analysed through theory-driven themes and they supported the development of semi-structured interviews for the second field study. The primary data from the second study supported the development of the structured interviews for the third field study. In each phase the interviews were transcribed and were used to develop codes. The codes helped for creating the themes and sub-themes. The sub-themes include the key areas discussed by the stakeholders for each phase as they were interviewed about the ES and GRC implementation process.

3.4.4. GENERALISATIONS FROM INTERPRETIVE RESEARCH

Walsham (1995) points out a critical issue for researchers, which is the generalisability of the results from their work. Yin (2009) argues on this issue that case studies are generalisable to theoretical propositions. Based on Yin's argument about generalisation from case studies; Walsham (1995) presents four types of generalisations, as these are developed in Table 3.7 (Yin, 2009; Walsham, 1995)

Type of generalisation	Description
Development of concepts	Development of an integrated clustering of concepts, propositions and world-views, which form theories in social science.
Generation of theory	Construction of a theoretical framework that could be used to guide studies in same areas.
Drawing of specific implications	Involvement of specific implications in particular domains of action and it may prove a useful insight for related work in other organisations and contexts.
Contribution of rich insight	Use of reports and results from case studies to provide rich insights about a wide range of different topics.

Table 3.7: Types of generalisations (Walsham, 1995)

The theoretical framework developed and used by the research can have implications as a guide for future studies in the field of Enterprise Systems Implementations and more specifically for the GRC Implementations. The generalisations made by this specific research

can have implications for the stakeholders involved in the GRC Implementation Experience, as well as the researchers that plan to investigate the field of GRC systems and their implementation.

3.4.5. ETHICAL ISSUES

The ethical issues arising from this research should be taken into account as the researcher had to engage open communication with the people involved in the field under study (stakeholders). Therefore there are some principles to assure and corroborate the ethics of the work. The ethical principles adopted in this research are summarised below:

- Seeking permission or access. Assure that relevant stakeholders involved have been consulted and accepted in advance by all.

- Setting clear background information about the nature and purpose of the conducted research.

- Participants who do not wish to participate or want to exit the research at any time must be respected.

- Confidentiality and anonymity. Permissions must be obtained before making any observations, interviews or document analysis. Protection of the identity of all participants and the confidentiality of the data must be agreed with all participants.

- The development of the work must remain accessible and open to all participants.

- Therefore, participants must be allowed to influence the work.

- The role of the researcher

Additionally, there are certain ethical aspects that the researcher must consider, such as; carried out the research in honourable and responsible way, do not disadvantage anyone involved by doing the research and, respect other participants' opinions and rights. Finally, since part of this research has been done in the United Kingdom, the "data protection Act 1998" was considered, furthermore the researcher had received an ethical approval from the Research Ethics Committee of Brunel University (Appendix D).

3.5. Conclusion

This chapter presented the various research approaches that have been selected for this research. Initially, the chapter presents the ontological and epistemological assumptions of the interpretative research methodology, which has been used as the basis of this research. The nature of the *qualitative* research approach is described too, and the qualitative research process is explained in order to justify the reason for this approach selection.

Qualitative research was selected and discussed in detail the field study approach and was chosen as the main method for collecting and analysing data. The different methods for gathering data were also explained. Finally, the selection of a thematic analysis approach for organising, coding and analysing data was presented.

The summary of the different choices that were made for the research approach used in this study is presented in table 3.8.

Research Approach	Choices
Research assumptions	Interpretive
Strategy	Field study
Role of the researcher	Outside observer
Data collection approach	Qualitative
Data collection techniques	Interviews, observations, document and archival records review, data management
Data analysis	Thematic analysis
Validation	Feedback on research results and observations

Table 3.8: Research approach choices

CHAPTER 4:
THE EMPIRICAL CONTEXT OF ES AND GRC IMPLEMENTATION PROCESS (PHASE 1 AND 2)

CHAPTER 4: THE EMPIRICAL CONTEXT OF ES AND GRC IMPLEMENTATION PROCESS (PHASE 1 AND 2)

4.1. INTRODUCTION

The interpretive field study research follows as one of the main principles; the principle of contextualisation (Klein and Myers, 1999). Therefore, the researcher has to reflect the social and historical background of the research setting in order to depict the situation under investigation and how this emerged. The empirical context of the two first phases of the research is developed through this chapter. In this chapter, the first two phases (1st and 2nd) of the implementation process will be described and later the data will be categorised and summarised. This target is followed in order to investigate the characteristic differences and similarities between the enterprise systems implementation process in general and then more specifically the GRC implementation process. This assimilation will give the context of this study and information about the phases followed in order to familiarise and get experience with the implementation process.

The chapter is structured as follows. The second section includes background information about the field investigation and a brief description of the two phases of this research. The third section describes the enterprise systems implementation field investigation in the 1st phase of the interviews and the fourth section the GRC implementation primary field investigation of the 2nd phase. The summary and categorisation of the findings will be presented in the fifth section, as well as the identification of the similarities and differences of the implementation process. The fifth section also highlights the importance of a more detailed investigation of the GRC implementation process and the significant elements that distinguish this from other enterprise systems implementation practices. The concluding part will give the reasoning for analysing the GRC implementation process in more detail rather than following a generalised enterprise systems approach; in order to move to the

next chapter (chapter 5) where the 3rd phase of the field investigation will be developed for a more detailed approach to the GRC implementation process.

4.2. BACKGROUND OF THE FIELD INVESTIGATION IN PHASES 1 AND 2

As it is also presented in Chapter 3 the research was divided in three phases (Figure 3.4). The first phase included the field investigation of the ES implementation process, in order to identify and familiarise with the implementation process of different enterprise systems and gain a better understanding of what general guidelines should be followed for achieving a successful outcome. This phase took place from February 2011 until November 2011. During this time, 8 people (stakeholders) involved in implementation projects of enterprise systems were interviewed about their implementation experience for these systems; in various organisations and contexts (each of the participants has participated in 3-10 implementation projects).

The findings of this study were used as a basis for the GRC field investigation of the 2nd phase. This phase took place from November 2011 until December 2012 and included interviews with stakeholders of GRC implementation projects: 4 people in total, one for each category of stakeholders (the stakeholders categories will be developed in the following section 4.2.2)

The decision to design this research in three phases is based on the intention to examine the key aspects of an enterprise systems implementation in general and afterwards investigate these aspects in the case of GRC implementation (initially in a general perspective and later in a more detailed approach). The main aim was to identify first the similarities and differences of these implementation processes, and distinguish the importance to follow a more specific approach for the implementation of GRC systems. Once the similar and different aspects of the implementation process are identified, the next step is further analysing the GRC implementation process in more detail (in Chapter 5). The more detailed analysis of the GRC implementation process will produce a clear view of this process and will provide a theoretical and practical background, as well as a guide for the organisations and the people intending to implement such systems in the future.

4.2.1. THE ES AND GRC IMPLEMENTATION FIELD INVESTIGATION –GENERAL INFORMATION

The successful enterprise systems implementation process is critical for achieving enterprise value for the organisation. For GRC systems, although their implementation process is a complicated one and requires attention, the literature about GRC is mostly dealing with the conceptualisation and the design of integrated GRC solutions. The topics about the identification of the "best" risk management approach are often more important than implementation topics such as the identification of activities and resources necessary to rollout a GRC solution to the productive environment (Weber et al., 2004).

Gericke et al (2009) support the idea that traditional approaches from software engineering or change management that address the implementation of IS cannot be applied "as is" to GRC solutions, because they do not consider certain GRC specifics as a GRC solution is not local as other IS solutions. An explanation to the previous argument is that GRC solutions constitute analytical information systems compared to operational, yet integrated information systems such as e.g. ERP systems. The implementation of a GRC solution is a complex problem and the need for a comprehensive methodological support for the implementation of GRC solutions becomes obvious (Gericke *et al.*, 2009).

The literature review about the ES implementation process resulted in identifying the main aspects of such implementations. These aspects as they are also described in Chapter 2, are mainly: the goals and objectives of the implementation, the purpose and key stakeholders, as well as requirements prior the implementation, critical success factors and problems throughout the implementation projects. These categories of ES aspects as they were defined by the literature (Chapter 2) will be used to form the questions for the 1st and 2nd phases of the field investigation. The main output of the 1st Phase was a brief analysis of the ES implementation aspects. The target group interviewed about these aspects was professionals who had experience in ES implementation projects. The semi-structured interviews were consisted with questions about:

(a) the goals and objectives of these projects,

(b) purpose of the system and key stakeholders

(c) requirements prior the implementation,

(d) critical success factors ,

(e) problems/ barriers throughout the implementation process.

The first phase of the data collection was based on the methodology of field studies. According to that, the research methodology is based on studying empirical observations and data at their natural setting, as it is addressed by Coolican (2004). This research methodology allows building the knowledge of 'process, sequence, and change pertaining to organisations, positions, and social interaction'.

The two last phases of data collection aimed to get insight about the implementation process of GRC software initiatives. In more detail, the 2nd phase of the investigation involved the development of semi-structured interviews based on general information about the GRC implementations. The GRC implementation project stakeholders were interviewed in general aspects of GRC implementations and any possible issues that could arise throughout the whole implementation process. Furthermore, this phase included literature investigation about the enterprise system implementation projects and their success factors.

4.2.2. THE ES AND GRC IMPLEMENTATION STAKEHOLDERS

The research builds upon the broad understanding and experience of people (stakeholders) involved in enterprise systems implementation projects, more specifically the focus of selection of the interviewees was on maximising the diversity. By maximising the diversity, the sample will provide different and varying data. The research shares the enterprise systems implementation process as a common unit of analysis, but uses different roles within the implementation projects as contexts. The qualitative data analysis was conducted in 8 stakeholder interviews, and the results of this analysis were confirmed at the end of the 1st phase.

The diversity of the sample was achieved by including a broad range of roles in the ES implementation projects as these are related to GRC roles. The GRC implementation project stakeholders were identified by Gericke et al. (2009), where four GRC stakeholder categories were identified and described. These four GRC stakeholder categories were related to the ES implementation and the following four stakeholder categories were developed for the interviews of the 1st phase. The stakeholders interviewed for the 1st phase were 2 from each of the following four categories:

a) Project Manager

b) ES Expert

c) Top Manager

d) IT Consultant

The systems (ERP systems, Risk Management systems, Accounting Information systems etc) and disciplines related to these solutions were relevant to the activities and the nature of the GRC systems. Since the different roles within the enterprise systems implementation provide different focal points, the interviews were two for each stakeholder for covering different roles using mixed purposeful sampling. The stakeholders were working for different implementation projects and they have experience between 3 to 10 years in the implementation projects of these specific systems. The companies they work are in UK and Greece, and they had experience in implementation projects in other countries like India, Cyprus, other Balkan countries (Bulgaria etc). Table 3.3 (Chapter 3) provides further information about each participant.

The GRC implementation project stakeholders were identified by Gericke et al. (2009) as:

a) Project Manager

b) GRC Expert

c) Top Manager

d) IT Consultant

These GRC stakeholders were interviewed in general aspects of GRC implementations and any possible issues that could arise throughout the whole implementation process (the same aspects as these of the ES implementation process). Furthermore, this phase included literature investigation about the enterprise system implementations and their success factors. The diversity of the sample was achieved by including a broad range of roles in the implementation projects as these are related to GRC roles. The stakeholders were working for different implementation projects and they have experience between 5 to 11 years in the implementation projects of these specific systems. The companies they work are in the UK; however, the GRC implementation projects they have participated are worldwide. Table 3.4 (Chapter 3) provides further information about each participant.

STAKEHOLDER CATEGORIES AND THEIR ROLES

The stakeholder categories as these were summarised above include a project team, which is headed by a ***project manager***. The project manager coordinates the project and gives directions for the whole implementation process and the activities involved; therefore, the project management role is crucial for ES and GRC implementations.

The ***ES/GRC expert*** specialises in all the areas of the ES or GRC respectively. The support provided is within the scope of the expertise for the processes implemented. The expert is also responsible for the integration of the relevant business processes within the system.

The ***top manager*** is responsible for the development of the project strategy; and to support the strategy that will be followed during the whole project. The ***IT consultants*** are responsible for the integration of the system with the organisational environment of the enterprise. Moreover, they will give training and directions to the IT unit of the enterprise for using the new implemented system

4.2.3. THE COLLECTION AND MANAGEMENT OF THE DATA

All the interviews were tape recorded and transcribed. Recording helped the researcher to interpret the data without time pressure. The limited time for the interviews due to the participants' busy schedule, could not support note-taking processes from the researcher,

therefore the tape-recording method was proved as a very crucial step throughout the interview process.

The research methodology and design was discussed in the previous chapter (Chapter 3). The data from the interviews conducted were analysed through the phases of thematic analysis as described by Braun and Clarke (2006) in Table 3.6. More specifically, the thematic analysis was conducted following the procedures described in Table 3.6 .

- **Phase 1 (Familiarising with the code):** The interviews were recorded and transcribed, and the researcher was familiarising with the transcripts of the interviews.
- **Phase 2 (Generating initial code):** The researcher investigated initial emerging codes from the transcripts of the interviews
- **Phase 3 (Searching for themes):**The emerging areas from the transcript were identified and matched to the theoretical background, and the themes were developed
- **Phase 4 (Reviewing themes):** The themes were reviewed and confirmed by the interviewees
- **Phase 5(Define and naming themes and sub-themes):** Sub-themes were defined and the analysis framework was developed in the final form.
- **Phase 6 (Producing the analysis):** The analysis of the themes and sub-themes followed, by using the analysis framework developed in the previous phases of the thematic analysis.

The primary data from the interviews of the first field study were analysed through theory-driven themes (based on the ES theoretical background) and they supported the development of semi-structured interviews for the second field study. The analysis of the data from the first field study supported the development of the interviews for the second field study. In order to collect data for GRC systems that could be assimilated with those of the first phase, the interviews were based on similar format to those at the first field investigation. The analysis of the data of the second field investigation followed the thematic analysis approach of Braun and Clarke (2006) as well.

4.3. PHASE 1: THE ES IMPLEMENTATION FIELD INVESTIGATION

The 1st phase of the investigation included interviews about the ES implementation aspects as these were described previously (section 4.2.1). The main output of the 1st Phase was a brief analysis of the ES implementation aspects. The target group interviewed about these aspects was professionals who had experience in ES implementation projects. The semi-structured interviews were consisted with questions about:

(a) the goals and objectives of these projects,

(b) purpose of the system and key stakeholders

(c) requirements prior the implementation,

(d) critical success factors ,

(e) problems/ barriers throughout the implementation process.

The data gathered from the interviews of the 1st phase are described below; following the five categories, as these were identified above.

4.3.1. ORGANISATIONAL GOALS AND OBJECTIVES FOR THE ES IMPLEMENTATION

The stakeholders of the ES implementation projects discussed the major goals and objectives of an ES implementation project. These goals and objectives usually lay within the **management scope of data and information;** through **an integrated infrastructure,** which follows **common IT rules.** The discussion of this scope lead to decisions about implementing a system that can support the data management needs of the enterprise, as the interviewees explained, the need of IT solutions for the enterprise requirements seems most of the times as a crucial issue.

'The need for an updated enterprise system for managing the wide range of data especially for larger organisations, leads them mostly in top management decisions about ES implementation' (Top Manager 1).

The discussions also highlighted the fact that the goals and objectives of the ES implementation usually differ between SMEs and larger enterprises. The SMEs aim to organise their data and streamline their processes, whereas larger enterprises aim mostly on implemented an integrated tool as their existing systems need further organising of their business processes.

'The SMEs decide to implement an ES (sometimes maybe for first time – some of them have manual processes still) in order to organise their data and streamline their processes' (Top Manager 2).

'[...]larger organisations usually have already an ES and want to implement an update of this system or another more integrated technology in order to organise better their processes' (ES expert 2).

Another ambition is **to reduce the cost** by immediately **monitoring cost base, resource allocation, purchasing,** and **logistics.** The cost factor in the core business processes is the basic goal especially for SMEs when they choose to implement an ES system as it was expressed from the interviewees.

'[...] the implementation of an ES technology, costs a great amount of money for the enterprises, however they choose to go through such projects as they see the future financial benefits of such an undertaking' (ES expert 1)

'The benefits of ES systems especially in areas as resource allocation, purchasing and logistics, motivate the organisation to go through large ES implementation projects [...] in order to update their existing ES or implement completely new ES solutions' (ES expert 2)

The **improved productivity** also states another target for the organisations by **systematically evaluating production input, process, and output**. Within the organisational setting, employees claim that the decisions for the implementation of new technological solutions comes from trends, as most of these organisations nowadays operate already with different ES. However, this opinion is applicable merely to SMEs but not to larger organisations.

'Larger organisations are targeting in increased productivity as new technological business solutions can boost the production numbers [...]' (Top Manager 1)

The decisions for the ES implementation often stem from the need for a new technological solution, as most of the larger organisations already operate different ES. Thus, some enterprises especially SMEs try to follow the trends and implement such systems in order to get advantage against their competitors that have already an ES.

4.3.2. PURPOSE OF THE SYSTEM AND KEY STAKEHOLDERS

As it is also stated in the previous arguments, the ES implementation is **productivity, cost, and efficiency orientated**. Another question about the ES implementation was related to the key stakeholders of such projects. The interviewees agreed in the following categories*:*

1. project manager

2. executives

3. operation managers

4. IT specialists

5. consultants

6. enterprise systems vendor

7. project team members

8. end-users

The above stakeholder categories for the ES implementation can also be matched with the four groups of stakeholders that were identified from the literature in order to facilitate the initial participant selection process. The first five categories bare similarities with the stakeholders-ES implementation interviewee categories, as these were identified at section 4.2.2.

The project manager role is the same in both categorisations; ES experts can be matched to the executives; the top managers with the operation managers and the IT consultants with the IT specialists and consultants. The enterprise systems vendor, project members and end users are categories of stakeholders involved in the ES implementation, as these were identified from the interview data; however they were not identified at the first step of the initial participant selection process (with the use of the literature review). These three categories are very important; however, the key stakeholders for the implementation are the first five categories, as they are the decision makers of the implementation.

4.3.3. METHODOLOGIES – PRACTICES PRIOR THE ES IMPLEMENTATION

While discussing the methodologies and practices before the decision of the ES implementation, the interviewees were dividing the ES implementation projects in two types:

a) the ES implementation where **there were no ES (in SMEs or new organisations)**

b) the ES implementation where **there was ES** but the organisations were seeking for a **new solution or an update of their current systems**

Sometimes organisations, especially small enterprises, operate manually. This phenomenon seems rare in developed economies; however, the interviewees have faced such challenges especially in projects in developing countries. Another fact that was discussed, was that SMEs and larger organisations are very IT conscious, and therefore the last decade they have gone through various ES implementation projects.

'In some of the organisations, the ES implementation was not successful; therefore, they require our experience and expertise in the field, in order to implement a new ES' (IT Consultant 2)

'[...] the new enterprises are 'ideal' for ES implementation projects, as there is no change management challenge. However, they do not operate a standard business model as they are new, and that introduces a risk for the ES implementation compared to other ES projects where they have a mature business model to follow' (ES Expert 2)

The enterprises usually go through an ES implementation from scratch, as they are new or for the case of some SMEs, they have not implemented any ES before. In that case, there is no change management challenge, but there is no business model to follow as well, which introduces a challenge too. In organisations that have already an ES or they are mature enough (not new) to have a business model already; it is easier as they provide a framework for the implementation team to follow for the ES implementation.

4.3.4. ORGANISATIONAL AND TECHNICAL REQUIREMENTS PRIOR THE ES IMPLEMENTATION

The inputs regarding the organisational and technical requirements of ES implementation are illustrated in the quotes below, as these were discussed with the interviewees. The requirements described were both organisational as well as technical. As it was expressed, the preparation of the ES project should include the **business case scenario** as well as a very defined and structured **project plan**, which should be followed with strict guidelines. The greatest challenge of an ES project will be the change management. Thus, a **change management plan** is required as well as a **project plan**, which will state the milestones of the ES implementation process.

'Once the decision for the ES implementation is made, the next step is to choose the vendor for the system and decide the project management plan, while stating issues as change management, current state analysis and measuring key indicators of the process performance' (Project Manager 1)

'The project plan is the first thing to discuss when the stakeholders choose an ES for their organisation. There are, however other things to consider as well, these are the current state of the organisation and the operational model they follow, the selection of the most suitable software and software vendor, as well as the project team and the project manager' (ES Expert 1)

As it is stated also above, the requirements prior the implementation of such a large-scale enterprise systems can be summarised as the **business case** that has to be developed, as well as **key performance indicators** and **processes should be measured**, and the **current state analysis**. The selection of **software** and **software vendor** will be critical for the further

development of the implementation project. What are also necessary and very important are a defined **project plan** (how the system will be rolled out, supported, maintained and upgraded) and a **change management plan**. Finally, the **decision to proceed** and **approve the plan i**s what is required before starting with the project.

4.3.5. CRITICAL SUCCESS FACTORS FOR THE ES IMPLEMENTATION

The interviews contained information related to the success factors as the interviewees described. The critical factor in an ES implementation is following a project plan, stating clearly the requirements of the ES implementation. This plan should be supported from the top management. The importance of a project plan from the initial stages of the implementation was highlighted and set as very crucial for the whole implementation experience lifecycle.

'The role of the project manager is the most critical, as his/her leading skills will set the cooperation inside the organisation and the cultural and communicational problems will be decreased' (IT Consultant 1)

The need of a defined **project plan supported** directly from the **top management** is presented as critical for the development of a successful ES implementation strategy. Furthermore, the role of the project manager is highlighted as he/she will lead the project and can bring the project team together and make the strategic choices whenever required.

'The software choices as well as the vendor choices are really important for the success of the implementation. However it is not only the software, but also the implementation team and the project management that can make an ES project successful' (Top Manager 2)

Throughout the implementation processes, there are forces within the enterprise that resist to the organisation change as in most of the new projects. For that reason, and for user acceptance and training reasons, decisions about the ES vendor and the project management are critical for ES implementations. Other factors discussed were the **software vendor selection** as well as **the training** as they are very important for the ES implementation success.

'The business process model is giving the information about the customisation of the processes to the ES system that will be implemented. That model is not simply required, it is essential when an ES implementation is decided' (ES Expert 1)

'The communication of the project team, the strong project management and the user training are critical factors affecting the ES implementation, especially in its early stages' (IT Consultant 1)

Other factors discussed were the **communication of the project team** and the **process management activities**, as well as the **customisation of the ES**, as these can introduce critical points of the ES implementation

The critical success factors for the ES implementation, as these were identified by the interviews with the stakeholders, can be organised in the following categories: **top management support, users' training and acceptance, project communication, project management, management of cultural differences, ES software selection, process management activities, customisation of the system**. These seemed as the most important factors affecting the ES implementation according to the interviewees.

4.3.6. PROBLEMS/BARRIERS OF THE ES IMPLEMENTATION

The problems that could be encountered throughout an ES implementation project could be the **technical complexity** of the solutions that requires a great deal of expertise and the **mismatch between technical specifications** of the system and the **business requirements** of the company. The enterprise systems (ES) are very complex, due to their integrated nature, combining a wide range of processes and functions together. Therefore, most of the problems the project team face throughout the implementation lifecycle are due to that complexity level of these systems.

'The common problem we come through most of the ES implementations, is the misalignment of the IT with the business processes. For experienced people in implementations, that problem can be avoided with a good project management plan, stating clear objectives for the ES implementation [...]' (Project Manager 1)

Another problem could be the **lack of preparation** regarding the ES project; if the objectives of an ES implementation are not clear this can result in obstacles throughout the implementation. In addition, if the project plan is not developed well; **the implementation process spins out of control.** There were also cases where many companies have proceeded to implement ES without making any **return on investment (ROI) calculations**, which resulted in major implementation errors and project failure. The need for a project plan prior the ES implementation was also mentioned in a previous section, as without a strong project planning process the implementation is doomed to fail. The project team should recognise the need of planning from the start of the project.

'The lack of preparation before the project can result in problems [...]These problems can be avoided from the start; for that reason the vendor and project team selection are very important for the successful outcome. The more experience and knowledge they have about the implementation, the better results the organisation will take' (ES Expert 1)

'If the organisation fails to calculate the ROI this can be a major issue leading the project to failure. Before investing in such a project, everything should be considered, in order to get the best results' (Top Manager 2)

The fact that the company **does not make the strategic choices needed to configure the systems and processes** can be encountered in the problems that should be considered before implementing an ES. The relative **invisibility** of the ES implementation process is another issue that has to be taken into account, as well as the **unpredictably complex social interaction of IT and organisation** and the **mutual adaptation between the IT and user environment.**

'The configuration of the ES is one of the focal implementation points, giving great attention at this step, can avoid the risk of an inadequate performance of the system' (ES Expert 1)

'People is a major factor of the most organisational issues [...] People resist to change, they need to be well trained to the new technology, as well as sometimes they prefer to work manually avoiding interaction with the implemented systems' (IT Consultant 1)

The challenge the project managers have to be prepared is the case where they focus on the technical and financial aspects of a project and **they neglect to take into account the non-technical issues like people management.**

4.3.7. ASPECTS OF THE ES IMPLEMENTATION

The ES implementation aspects, as these were identified from the previous sections can be summarised in the following table (Table 4.1)

Aspects	ES Implementation
Goals and Objectives	• Efficiently managing data and information • Reducing cost • Improving productivity
Purpose of the system	• Productivity, cost and efficiency orientated
Key stakeholders	• project manager • executives • operation managers • IT specialists • consultants • enterprise systems vendor • project team members • end-users
Methodologies prior the implementation	• Manual methodologies – no existence of an ES • Old ES or outdated versions of ES
Requirements prior the implementation (organisational and technical)	• Business case developed • Key performance indicators and process measurement • Current state analysis • Selection of software and software vendor • Project plan (how the system will be rolled out, supported, maintained and upgraded) • Change management plan • Decision to proceed the plan

Critical success factors	• Top management support • Users' training and acceptance • Project communication • Effective project management • Identification/ Resolution of cultural differences • ES software selection • Process management activities • Customisation of ES
Problems/ Barriers	• The technical complexity • The mismatch between technical and the business specification • Lack of strategic choices for the configuration the systems and processes • Lack of control of the implementation process • Disregard of the return on investment (ROI) calculations. • The relative invisibility of the ES implementation process • The unpredictably complex social interaction of IT and organisation • The mutual adaptation between the IT and user environment • Lack of consideration of-technical issues like people

Table 4.1: Aspects of ES Implementation

4.4. PHASE 2: THE GRC IMPLEMENTATION PRIMARY FIELD INVESTIGATION

The second phase of the investigation included interviews about the GRC implementation aspects as these were described previously (section 4.2.1). The main output of the 2nd Phase was a brief analysis of the GRC implementation aspects. The target group interviewed about these aspects was professionals who had experience in GRC implementation projects (GRC implementation stakeholders as these were described by Gericke et al (2009). The semi-structured interviews were consisted with questions about:

(a) the goals and objectives of these projects,

(b) purpose of the system and key stakeholders

(c) requirements prior the implementation,

(d) critical success factors ,

(e) problems/ barriers throughout the implementation process.

The data gathered from the interviews of the 2nd phase are described below.

4.4.1. Organisational goals and objectives for the GRC implementation

The stakeholders of the GRC implementation projects discussed the major goals and objectives of a GRC implementation project. These goals and objectives usually lay within the **financial reporting and controlling scope**. The discussion of this scope lead to decisions about implementing a system that can support the continuous control monitoring needs of the enterprise, as the interviewees explained the need of IT software for the enterprise controlling strategy seems most of the times as a crucial issue:

'The usual scenario is that a company has an annual audit, and the typical audit point which comes back to ERP systems. [...] Therefore, the companies do not have any kind of GRC tool to monitor the risks in any way, to address that annual audit point. That is the point when they realise: ''OK we need some sort of compliance tool''' (IT Consultant 1)

'It is very challenging when the stakeholders are driven by an audit, and they decide to implement a new piece of software for auditing and controlling. At this case you have to communicate the requirements and bring all the teams together on-board' (GRC Expert 1)

The stakeholders also discussed the goal of **efficient and effective business operations**, which leads enterprises to implement GRC systems. There are so many cases when the businesses are helpful with the GRC implementation plan. These cases are mostly when they are looking for ways to be more proactive in terms of user access, process automation and improving their processes. If they are driven by an audit to the GRC implementation, the case becomes more challenging, as it was mentioned from the professionals during the interviews. The better operational performance goal was discussed as it is also stated below:

'From a strategic point of view, they want to have better operational governance. They want to be informed about the people and their roles, to have accountability and define the

responsibilities in the organisation, for running better business processes and work more efficiently' (Project Manager 1)

'On a risk management side, they want their strategic goals to be likely to identify key performance related to risk, and have the processes in place to mitigate those risks' (Project Manager 1)

A third goal for the GRC implementation that was discussed through the interviews was the **compliance** with the laws and regulations. The third goal of compliance is often seen in audits, but it is more than that. Regulations are part of that compliance; there are regulations as Sarbanes-Oxley, Basel II, holistic standard FDA etc. However, there is also compliance to standards the organisations set up internally.

'If you have processes for risk management and if you have processes for governance, so is compliance to them as well. You have to measure the activities to be able to say that they are operating effectively. Therefore, compliance goes to its regulatory audits, but also compliance to internal procedures' (GRC expert 1)

The previous quotes from the interviews identified the goals and objectives of the GRC implementation. These goals usually lay within the 'finance' umbrella, where **financial reporting and controlling** play an important role. The enterprises within the last decade became more conscious regards controlling and monitoring practices and seek for a tool to assist them with the auditing controlling practices. Another ambition can be described as the strategic plan of the organisations that follows practices of more **efficient and effective business operations**, therefore there is a need for a software which provides a clear view of the enterprise (user access, the roles and the business processes). The third goal for implementing GRC software within the enterprise includes the **compliance with the internal and external regulatory standards**.

4.4.2. PURPOSE OF THE SYSTEM AND KEY STAKEHOLDERS

As it is also stated in the previous arguments, the GRC implementation is **risk management, control monitoring, and information sharing oriented***.* Additionally, the interviewees were

asked about the GRC implementation key stakeholders. The interviewees related the stakeholders to the following categories*:*

1. project manager
2. GRC experts
3. Finance team
4. Audit team
5. IT team
6. consultants
7. GRC Systems vendor
8. project team members

These key stakeholder categories are influencing the GRC implementation process, therefore their roles, activities and interests were investigated further in the 3rd phase and they will be presented in the next chapter (Chapter 5).

The above stakeholder categories for the GRC implementation can also be matched with the four groups of stakeholders that were identified from the literature in order to facilitate the initial participant selection process. The first six categories bare similarities with the stakeholders-GRC implementation interviewee categories, as these were identified at section 4.2.2.

The project manager and GRC expert roles are the same in both categorisations; the top managers are substituted with the finance and audit teams, that have very basic top management roles at the GRC implementation; and the IT consultants can be matched with the IT team and consultants. The GRC systems vendor, project team members are categories of stakeholders involved in the GRC implementation, as these were identified from the interview data; however they were not presented at the literature review initial identification process. These two categories have important roles in the GRC implementation; however, the key stakeholders for the implementation are the first six categories, as they are the core members of the GRC implementation project.

4.4.3. METHODOLOGIES – PRACTICES PRIOR THE GRC IMPLEMENTATION

While discussing the methodologies and practices before the decision of the GRC implementation, the interviewees were mostly discussing non-automating strategies the enterprises followed. These strategies can be used as frameworks for the GRC implementation. Enterprises usually operate a non-automated strategy for GRC practices before the implementation of the software. These **manual, non-automated practices** can set the initial framework to start with the GRC system implementation. Initially, there is a need to define the processes and set the organisational objectives. At this stage, the companies are well prepared in order to start efficiently with the implementation as the GRC professionals discussed.

'GRC software is not a tool that you can pick up off the shelf, you go and implement it and everything is fixed. To get an understanding about what available controls you want to be improved and have that governance structure, get everybody thinking in the right lines. And then what you are doing is you plug in the technology solutions into that framework to address that' (Project Manager 1)

While discussing the methodologies that were used before the implementation of a GRC tool within the enterprises, the point that was addressed was the fact that the GRC software is not a technological tool that can be plugged in the organisation without **a prior business framework.** It is necessary to develop a plan about the available controls, the governance structure, and the business objectives, in order to implement successfully the new technology.

'GRC technology provides a strict tool. You cannot implement such a strict tool in an organisation that does not already operate some form of controls already (manual or with the use of other technologies)' (GRC expert 1)

'The organisation should be prepared before the implementation. If you go and implement the tool without having any prior business experience in a control environment, that implementation is going to fail from the start' (IT Consultant 1)

The GRC tool as it was noted from the interviews, is a strict controlling tool, therefore there is a need of a 'preparation' for the organisation seeking to implement such a technology. There is a requirement for **a prior controlling framework** within the enterprise; the enterprise needs to work under some controlling processes, either **manually or with the assistance of other tools.** The organisation cannot implement the GRC tool if there is no prior GRC policy and processes, as the GRC environment will be very strict if the organisation does not already used to operate a model of controls.

4.4.4. ORGANISATIONAL AND TECHNICAL REQUIREMENTS PRIOR THE GRC IMPLEMENTATION

The organisational and technical requirements for a GRC implementation should be considered very carefully, as it was also discussed throughout the interviews with the GRC stakeholders. The stakeholders were asked about the GRC requirements; and highlighted the importance of each of these requirements. The first three technical and organisational aspects that were developed during the interviews can be grouped in the following categories: the **development of the business case,** the **identification of the risks**, the **project planning** (how the system will be rolled out, supported, maintained and upgraded). These topics were discussed as follows:

'[...] Key people will identify the risks from an operational side, as well as train the people inside the organisation to be able to manage the tool the project team will also develop the project plan, about the system rollout, and how it can be supported and maintained.' (IT Consultant 1)

From a business perspective, the requirements are based on the fact that the organisation can support such a system. The organisation needs to have the processes in place in order to be able to identify the risks and the tools for articulating these risks. The business case should be developed from the initial stages of the GRC implementation project; identifying the risks that will be plugged in the system and defining their requirements. While being early informed for the risks, the project plan should be also defined in order to understand how the system would be rolled out, supported, maintained and upgraded. Other requirements emphasised throughout the interviews, were described as **the need for a**

change management plan, **budget planning** and clearly **the decision to proceed with the plan.**

'Definitely, as in every IT implementation project, you need to have a change management plan, as well as the business plan. Also, thinking about what budget you want to spend at such an implementation will affect most of the choices that will be taken later into consideration' (Project Manager 1)

Another point that was brought to the fore from the interviews was the **identification of the roles and who owns each risk; controls their content and approve those risks**. Additionally, a topic that was discussed was the significance to develop **a current state analysis**; more specifically the need the enterprise to provide a current GRC framework to start with.

'There is a need of the technical infrastructure as well as a current state analysis, in order to identify the GRC framework to start with. This part is very crucial' (GRC Expert 1)

'You need to know also what systems are in place, what you need to connect with the GRC system, because this affects who is going to have access in what and what are the roles in each of the existing systems. You need to know who owns each role, who controls the content of them and who approves those risks' (IT Consultant 1)

The **selection of software and software vendor** and the **IT infrastructure** of the organisation is another requirement. This requirement included the IT landscape of the organisation; and more specifically what systems they use. Usually, large enterprises decide to implement the GRC systems; the SMEs are not very interested in such tools, according to the interview data.

'There are different 'sizing' options for these systems; this is called 'T-shirt sizing' and they are 'Small, Medium and Large'; each one fits in different enterprises, and they are dependable to the size of the organisation' (GRC expert 1)

'Larger enterprises require different technical aspects of the system. [...] So the vendor and the software selection is one of the basic technical requirements of a GRC implementation' (Top Manager 1)

The requirements from an organisational and technical perspective were stated in the discussions with the stakeholders and they were characterised as critically important as the phase before the actual software implementation can indicate the whole implementation project success.

4.4.5. CRITICAL SUCCESS FACTORS FOR THE GRC IMPLEMENTATION

The critical success factors of the GRC implementation were identified in the interviews with the stakeholders and they are described mostly in the following points. Initially, the project should **ensure a top management support**; coming from the system manager or a business sponsor. While the top management support is important, the **key stakeholders** should be also involved; these stakeholders should be both from IT and financial-auditing teams, that should be engaged to communicate effectively for the success of the project. One of the most important parts for the implementation of these tools is the achievement of **a common understanding** about the need of a GRC solution. The reasons for implementing a GRC system are mostly finance-led. The organisations need to identify the finance and operational risk in their systems.

'All the key stakeholders are sitting under the 'finance-umbrella', so if you don't engage the finance people of the organisation in this project, the project will have no success' (Project Manager 1)

'One of the largest challenges of the GRC implementation is the communication between the stakeholders. Usually, the preferred method is to catch some management sponsorship that will help also to achieve a common understanding about the need for such a solution' (GRC Expert 1)

Furthermore, information should be **cascaded throughout the organisation improving various functions** (regards information risk, internal audit, user provisioning, business process ownership). The **Identification of the process owners and the risks associated with it** will be another challenge for the implementation tasks.

'The 'ultimate' sponsorship will be able to cascade information throughout the organisation improving various functions. The key to implement GRC, you have to know who owns that process and who owns a new risk associated with it' (IT Consultant 1)

'The important thing is not so much the risk rule sets; this is kind of a generic thing, but the identification of the process owners, the roles and the risks. The business should consider how things work' (Top Manager 1)

Other factors discussed were about **defining the GRC system requirements** and **the training of internal people** to be able to manage the system and cope up with the solutions. The last point was highlighted with great importance as solving the problems internally will avoid further risks from the organisation. A critical point for the implementation is to define early the system requirements and follow a project plan, which clearly states these requirements.

'The organisation should get involved also with the provisioning workflows, in order to understand how things work. So for example, they might think 'yes we have the role in this stage, but we do need the risk in this stage'. The role owner is the same person as the risk owner, so rather than approving the request, twice it makes more sense to do everything in a single stage. You need to train them and get them involved in the project' (IT Consultant 1)

'You have to train the internal people to be able to manage and cope up with the solutions. It is exactly much the same as implementing any module of ERP. You have to have people knowing the system and knowing 'why'. As for technical people it is very easy to teach them how to do something, but understanding is the biggest challenge' (GRC Expert 1)

The above factors are critical in order to ensure a successful GRC implementation process. The critical success factors identified for most of the ES implementation projects (in the previous section), can be also employed additionally in the case of the GRC implementation as well. However, the GRC systems have also additional factors to consider as well (this point will be discussed later in section 4.5.4).

4.4.6. PROBLEMS/BARRIERS OF THE GRC IMPLEMENTATION

Another topic for discussion during the 2nd phase of the investigation was the problems and the barriers that the stakeholders may face throughout the GRC implementation project. The stakeholders highlighted in this part of the interviews, the following issues that may affect the project.

The **technical complexity of the solutions** that requires a great deal of expertise can be a challenge itself. Experienced project teams should implement such complex systems in order to avoid common problems due to their complicated nature. Also, if **the company is not ready for a GRC solution** that will introduce a further challenge for the whole project as the people of the organisation need to understand why they need it and what solution they need to implement.

'The main issues affecting the GRC implementation are two: technology and people. The first is mostly because GRC systems are complex systems that require great deal of expertise. The second usually occurs because the people within the company are not ready for such a tool; they do not know why such a software is required and they do not also know what type of software to implement' (Top Manager 1)

A big problem exists also when there is **no control framework already in the organisation** and the project team needs to develop a control framework from scratch. In that case, the organisation does not have that level of detail already and cannot put a 'stricter' tool as GRC solutions. The organisation should be 'mature' enough with a level of controls already inside the business landscape.

'One of major success factors is the control frameworks that already exist in the organisation. If there is no control framework already in this organisation, there will be a great problem. The problem exists as the organisation does not already have that level of maturity regards controlling functions, therefore the implementation of a strict controlling tool as GRC will be very difficult to adopt in such unstructured business environment' (GRC Expert 1)

Another common challenge for all the implementation projects that will be faced also in a GRC project is **the conflicting priorities** within the organisation (between the stakeholders). Therefore, the need to have a strong project manager in order to avoid the 'conflicting priorities' issue seems as really important. This project manager will bring all the teams together to work to ensure the success of the GRC project.

'Within the organisations in most cases there are conflicting interests and priorities for the GRC system. They have also different understanding of the system and objectives as well' (IT Consultant 1)

The vendor selection was identified as a critical success factor in a previous section; however there are a lot of times that **a complicated GRC solution is selected**, and that provides additional problems as this solution could be difficult to work in the organisational landscape.

'The system complexity is a factor that can affect the implementation; also it can make difficult the process of customisation as well a system configuration. The software selection is very important for identifying which system suits better in your organisation, the system should be not very complicated otherwise the organisation will have problems later' (GRC Expert 1)

The training of the IT team is an important stage, however in cases that **the IT team of the organisation is not trained** on the system and they rely on external consultancies for the use of the GRC tool. In this case, there are challenges for the implementation as this can create a further risk that was not considered from the start of the project. The IT basis team of the enterprise should know how to solve the problems that may occur in the future; and train more people while sharing the knowledge about the system. Those principles can make a strong GRC environment within the organisation.

'Training the people inside the organisation about GRC principles and about the new implemented GRC system is crucial. Once you have them committed with the system, you have people knowing about the tool and you do not rely on external consultancies. That can avoid further risk for your organisation' (GRC Expert 1)

There are a lot of problems and challenges that should be considered before implementing a new GRC technology within an organisation. However, there are many cases where even if the stakeholders are experienced enough, some problems still exist and the project team should overcome them if they want to achieve a successful outcome. These problems should be identified from their start in order to be solved before they introduce a greater challenge for the whole project.

4.4.7. ASPECTS OF THE GRC IMPLEMENTATION

The GRC implementation aspects, as these were identified from the previous sections can be summarised in the following table (Table 4.2)

Aspects	GRC Systems Implementation
Goals and Objectives	• Strategic financial reporting and controlling • Efficient and effective business operations • Compliance with the laws and regulations
Purpose of the system	• Risk management, control monitoring and information sharing oriented
Key stakeholders	• project manager, • GRC experts • Finance team • Audit team • IT team, • consultants, • GRC Systems vendor, • project team members,
Methodologies prior the implementation	• Manual, non-automated frameworks and methodologies or other controlling systems

Requirements prior the implementation (organisational and technical)	• Business case developed –define risk requirements • Identification of the risks • Identification of the roles and who owns each risk, controls their content and approve those risks • Current state analysis- current GRC framework to start with • Selection of software and software vendor –IT infrastructure of the organisation, the IT landscape (what systems they use) • Project plan (how the system will be rolled out, supported, maintained and upgraded) • Change management plan • Budget planning • Decision to proceed the plan
Critical success factors	• Top management support • Key stakeholders involved • Achieve a common understanding about the need of a GRC solution • Cascade information throughout the organisation improving various functions • Define the GRC system requirements • Identification of the process owners and the risks associated with it • Training of internal people to be able to manage the system
Problems / Barriers	• The technical complexity of the GRC solutions • The company is not ready for a GRC solution • There is no control framework already in the organisation • There are conflicting priorities within the organisation • A complicated GRC solution that is difficult to work • Lack of training of the IT team of the organisation on the GRC system

Table 4.2: Aspects of GRC Systems Implementation

4.5. ASSIMILATION BETWEEN ES AND GRC IMPLEMENTATION PROCESS

As it was indicated in the literature review (Chapter 2) the term 'enterprise systems' mostly refers to Enterprise Resource Planning (ERP) systems in academic papers. However, the range of enterprise systems available is growing and includes except ERPs, also CRM, SCM enterprise portals, accounting systems, risk management systems, as well as GRC and other recent systems; which support different business problems with the use of integrated technology. In order to understand the nature and the aspects of GRC, there is a need to initially understand the general aspects of enterprise systems, and then indicate which of these are similar or different with the aspects of GRC systems. As GRC systems are within the broad area of ES, the comparison between them would not be feasible, as ES is the broad group of systems which includes also GRC systems (GRC is a subgroup of ES). Therefore, this section will assimilate the ES and GRC aspects; the assimilation between these systems will assist in identifying the similarities and differences between them.

For the purpose of the assimilation, this section will present same aspects identified in the 1st and 2nd investigation phases side by side, in order to identify the similarities and differences of GRC systems with the broad area of ES. The aspects of the two cases are developed briefly in the table below (Table 4.3). The table presents: (a) the goals and objectives of the implementation, (b) the purpose of each system, (c) the key stakeholders involved in each case, (d) the requirements prior the implementation process, (e) the critical success factors and (f) the problems (managerial and technical) throughout the implementation process.

4.5.1. THE GOALS AND OBJECTIVES OF THE IMPLEMENTATION

The ES implementation usually focuses on the efficient management of data and information through common IT infrastructure and system integration. Another target of these implementations is the reduction of the cost by immediately monitoring cost base, resource allocation, purchasing, and logistics. Improving the productivity by systematically evaluating production input, process, and output can be seen as one of the key objectives of the ES implementation. Thus, the GRC implementation is mostly following the objectives of

Strategic financial reporting and controlling, efficient, and effective business operations as well as the compliance with the laws and regulations.

4.5.2. PURPOSE OF THE SYSTEM AND KEY STAKEHOLDERS

The ES implementation mostly aims on the production, the cost, and the efficiency, while the GRC systems implementation aims on the financial controlling, regulatory compliance and the risk management within the enterprise.

Key stakeholders of the ES implementation include executives, IT specialists, vendors, consultants, project manager, project team members, operation managers, and end-users. For the GRC implementation, the key stakeholders are mostly from the finance and auditing team as well as the IT team of the enterprise. Both of these two teams have to work together with conflicting interests for the system, for that reason they need to work under the sponsorship of a strong project manager who can bring these teams together.

4.5.3. REQUIREMENTS PRIOR THE IMPLEMENTATION

The requirements prior the ES implementation; are mostly the same for the other enterprise systems and their implementation projects. For the GRC implementation case, the prior requirements of the enterprise systems implementation can be used, however there are a few more requirements as the risk identification, identification of the role (who owns, approves, and controls each risk) and a GRC framework. The GRC case has also risk-related, controlling, and auditing requirements complimentary to the enterprise requirements (these are found in every enterprise system implementation).

4.5.4. CRITICAL SUCCESS FACTORS

While the critical success factors for the enterprise systems implementation can be employed also in the case of a GRC implementation project, there are also some additional factors with critical influence factor for the implementation project. The top management support (system manager or business sponsor), as it is also highlighted in every implementation project, is crucial, as this support will bring all the teams together to work for a common vision. In addition, the involvement of key stakeholders (from both IT and

financial-auditing teams) is necessary for achieving a common understanding about the need of a GRC solution. Other critical factors are to cascade information throughout the organisation improving various functions (regards information risk, internal audit, user provisioning, business process ownership), to define the GRC system requirements and the identification of the process owners and the risks associated with it. Finally, the training of internal people is very important in order to be able to manage the system and cope up with the solutions within the enterprise.

4.5.5. PROBLEMS THROUGHOUT THE IMPLEMENTATION PROJECT

As these can be summarised at Table 4.3, the possible problems that can be identified throughout an ES project and a GRC are different and they should be managed as such, with solutions that fit in each case. The differences mostly are stemming from the nature of the systems, which follows different orientation, and they are implemented following different objectives.

Aspects	ES Implementation	GRC Systems Implementation
Goals and Objectives	- Efficiently managing data and information - Reducing cost - Improving productivity	- Strategic financial reporting and controlling - Efficient and effective business operations - Compliance with the laws and regulations
Purpose of the system	Productivity, cost and efficiency orientated	Risk management, control monitoring and information sharing oriented
Key stakeholders	- project manager - executives - operation managers - IT specialists - consultants - enterprise systems vendor - project team members - end-users	- project manager - GRC experts - Finance team - Audit team - IT team - consultants - GRC Systems vendor - project team members

Methodologies prior the implementation	• Manual methodologies – no existence of an ES • Old ES or outdated versions of ES	• Manual, non-automated frameworks and methodologies or other controlling systems
Requirements prior the implementation (organisational and technical)	• Business case developed • Key performance indicators and process measurement • Current state analysis • Selection of software and software vendor • Project plan (how the system will be rolled out, supported, maintained and upgraded) • Change management plan • Decision to proceed the plan	• Business case developed –define risk requirements • Identification of the risks • Identification of the roles and who owns each risk, controls their content and approve those risks • Current state analysis- current GRC framework to start with • Selection of software and software vendor –IT infrastructure of the organisation, the IT landscape (what systems they use) • Project plan (how the system will be rolled out, supported, maintained and upgraded) • Change management plan • Budget planning • Decision to proceed the plan
Critical success factors	• Top management support • Users' training and acceptance • Project communication • Effective project management • Identification/ Resolution of cultural differences • ES software selection • Process management activities • Customisation of ES	• Top management support • Key stakeholders involved • Achieve a common understanding about the need of a GRC solution • Cascade information throughout the organisation improving various functions • Define the GRC system requirements • Identification of the process owners and the risks associated with it • Training of internal people to be able to manage the system

Problems/ Barriers	• The technical complexity • The mismatch between technical and the business specification • Lack of strategic choices for the configuration the systems and processes • Lack of control of the implementation process • Disregard of the return on investment (ROI) calculations. • The relative invisibility of the ES implementation process • The unpredictably complex social interaction of IT and organisation • The mutual adaptation between the IT and user environment • Lack of consideration of-technical issues like people	• The technical complexity of the GRC solutions • The company is not ready for a GRC solution • There is no control framework already in the organisation • There are conflicting priorities within the organisation • A complicated GRC solution that is difficult to work • Lack of training of the IT team of the organisation on the GRC system

Table 4.3: Assimilation between ES and GRC Systems Implementation

4.6. RESULTS COMING FROM THE ASSIMILATION (PHASE 1 AND 2)

The previous two phases involved the field study investigation of the ES implementation in general as well as the GRC implementation aspects. These aspects supported the research with outputs that could help in familiarising with the GRC software and how this is implemented in organisations.

The previous findings supported the idea that the generalised ES implementation approach can be followed also in the GRC implementation; however, some specifications should be taken into account as the GRC systems require a more specialised approach focusing mostly to their controlling and strict environment. The results from the first two phases of the research described the GRC aspects and gave insight on the implementation process. The GRC implementation process was divided by the interviewees in four implementation phases:

a) The preparation period prior the implementation,

b) The period when the GRC project is actually launched,

c) The period when the GRC system is implemented in the organisation,

d) And post-implementation period

These phases were described by the key stakeholders interviewed in the 2nd phase of the field investigation, and more specifications about each of these were given to support the description of each of these phases.

The **preparation period** prior the implementation as it was described by the interviewees included organisational decisions about the implementation of a tool for controlling and monitoring their business and financial processes. The main goals and objectives should be set from this initial phase, as well as the requirements for such an implementation, from an organisational and technical perspective. The key stakeholders should take a basic role at this stage, as they need to consider the critical success factors and the problems of such a project, in order to be prepared for the successful implementation.

The **period when the project is actually launched** was described as a very basic one, throughout the interviews. The project stakeholders take their actual roles within the project under strong project management supervision. The project management support was highlighted as very crucial aspect of this period, as all the stakeholders should work together without any conflicts, although their priorities differ and their interests for the new system.

The **period when the system is implemented** included the use of the system at its initial stages and the training of the people involved in the operating and controlling processes inside the organisation. At this period, the IT team of the organisation plays a basic role as they should get involved with the system operations, as they should be well trained with the help of the consultants. At this stage, the IT team gets the knowledge of the system in order to work afterwards without relying on external consultants, which will introduce greater risks.

The **post-implementation period** was described as the normal routine after the system implementation. The people inside the organisation are familiar with the system; the IT team is upgrading the system with new versions and patches, as they are experienced in solving any occurring issues with the system.

This implementation lifecycle for the GRC fits the implementation lifecycle of ES as Markus and Tanis (2000) described it. Markus and Tanis (2000) developed the ES experience lifecycle in four phases: a) project chartering phase, b) the project phase (configure and rollout), c) shakedown phase, d) onward and upward phase. These four phases of the ES experience lifecycle; are matched to the GRC experience lifecycle and will support the analysis framework of GRC for the third phase. This experience lifecycle will be used at the following chapter (chapter 5) to provide a backbone for the further investigation of the GRC implementation process of the third phase.

Additionally, as a step further, which will be included at the last part of this research; the results showed that the GRC implementation themes focus on dimensions like the integration, optimisation, and the information; which are also described as enterprise value factors (Davenport et al., 2004). This aspect will be further investigated in the first part of the third phase; when each of the lifecycle phases will be analysed in more detail. The three enterprise value factors were identified initially at the two initial investigation phases, and will be further investigated in the first part of the third phase; in order to confirm if they can be used for the analysis of GRC implementation process. The enterprise value factors will be used for the analysis of the GRC implementation; once their existence in this specific implementation is confirmed after the completion of the third phase. The dimension categories will be applied after the third phase in order to categorise and structure the data analysis. These three dimensions will be employed later in the whole implementation lifecycle of GRC systems, in order to facilitate the detailed analysis of the enterprise value of each implementation phase in a more structured way.

4.7. CONCLUSION

The sections above presented the two initial phases of the empirical field investigation as these were used for this study and how these can be sources for finding the assimilation between the GRC implementation process and generalised enterprise system implementation approaches. By analysing the aspects of each of these two cases, this chapter aimed to explain the reasons for a novel analysis approach for the case of GRC implementation.

The following chapters develop the analysis of the GRC implementation process by identifying the different phases of the GRC implementation lifecycle, the key stakeholders of these phases and the interests and activities related to each of this phase. The description of each phase of the GRC implementation lifecycle will give a structured analysis of the GRC implementation and this analysis will provide information for the last part of the analysis, which will follow with the GRC implementation value factors throughout the whole implementation lifecycle.

CHAPTER 5:
FURTHER FIELD INVESTIGATION OF THE GRC IMPLEMENTATION (PHASE 3)

CHAPTER 5: FURTHER FIELD INVESTIGATION OF THE GRC IMPLEMENTATION (PHASE 3)

5.1. INTRODUCTION

The 3rd phase of the GRC further field investigation was conducted to provide more insight on the GRC implementation as it was presented in the 2nd phase of this research (in the previous chapter). The 3rd phase will be analysed in this chapter. The focus of this chapter is twofold: (a) to get more detail about the GRC implementation process and (b) to identify the critical aspects of each stage throughout the whole implementation experience lifecycle.

The previous chapter (chapter 4) provided a primary analysis of the GRC implementation aspects. These aspects can give a clear view for the implementation process of such systems with a financial controlling and monitoring nature. The specifications that should be followed for GRC implementation will be studied further at this chapter. At the previous chapter except the identification aspects of GRC implementation; the identification of the GRC implementation lifecycle was developed and divided in four phases according to the analysis of the data from the stakeholder interviews. The four lifecycle phases will be used for the 3rd phase of the field investigation about the GRC implementation; these four phases were identified and the interviewees of the previous stage highlighted their importance. The lifecycle will assist in organising further the details of each of the four implementation stages.

This chapter presents the data gathered at the first part of the 3rd stage. The dataset will be organised in four implementation lifecycle phases in order to give more insight of the activities and interests in each part of the implementation. This first part of the 3rd phase gives background information of the GRC implementation process throughout the whole lifecycle. It will provide also the basis for developing the second part of the 3rd phase at the next chapter (chapter 6) where a more detailed analysis will be provided.

5.2. BACKGROUND OF THE FIELD INVESTIGATION IN THE 3RD PHASE

The research conducted in the third phase of data collection; aimed to get more insight about the implementation process of GRC software initiatives. In more detail, the third phase of the investigation involved the development of structured interviews based on general and specific information about the GRC implementations.

The GRC implementation project stakeholders were identified in the previous chapter and these are the following based on Gericke et al (2009): a) Project Manager, b) GRC Expert, c) Top Manager, d) IT Consultant. These GRC stakeholders were interviewed in structured questions about issues in the GRC implementation projects. The stakeholders were working for different implementation projects and they have experience between 5 to 11 years in the implementation projects of these specific systems. The companies they work are in UK; however, the GRC implementation projects they have participated are worldwide.

5.2.1. GENERAL INFORMATION ABOUT THE 3RD PHASE

The empirical context of this phase includes an in-depth investigation of the GRC implementation, to enrich the information gathered from the previous phase (2nd phase). The empirical data was collected over a period of approximately five months, from September 2012 to January 2013. In order to understand and get more detailed information about the GRC implementation process; the data techniques followed at this phase were mostly the structured interviews with the GRC implementation stakeholders, observation and review of reports and papers from the on-going and previous projects. The projects the interviewees had participated and they were describing their experience included organisations in different fields and with different organisational structures.

A few of these GRC implementation projects, the interviewees had participated in the previous years; included companies in different fields as: in the field of **energy and petrochemicals**, **transportation**, **accounting and auditing** sectors, **engineering and services** as well as **airline** companies.

The interviewees discussed that the vision of the organisations engaging with these GRC implementation projects was to:

- **Reduce cost** of audits, **ensure compliance** and **add extra packages** like user provisioning and privilege management.

- Provide a **holistic view** of the structural hierarchy from an **authorisations** perspective in the reporting system.

- Improve the **system audits** and **ERP security**.

- Achieve **security in a highly sophisticated environment** with a wide range of systems.

- **Security solution** for the whole company

- Review of the **security of their existing systems**

They discussed and encountered the challenges they faced through these projects which were:

- **To transition the responsibility** for compliance **away from the security team** to the business owners

- **To standardise, simplify and automate** the GRC processes as possible.

- **To synchronise security design** with two distinct systems (ERP and Warehouse system)

- The strategic **analysis of the assurance systems** within the company

- **To provide integrated security controls** in a complex environment with different systems

- **The knowledge transfer** to internal people in order to continuously support and maintain the system

The previous chapter (chapter 4) included the presentation of the data from the 1st and 2nd phases of the investigation. This dataset will be used at this phase in order to produce the structured interviews. The previous chapter provided information about the aspects of ES as

well as GRC in more specific. These aspects could help in understanding better the GRC systems and the implementation plan that should be taken into consideration.

The 2nd investigation phase presented general information about GRC systems as the goals and objectives that drive enterprises to implement such systems, the purpose of such systems and the stakeholders involved in implementation projects. This information, coupled with the information about the methodologies that were used prior the implementation and the requirements (organisational and technical) of the implementation, as well as the critical success factors and the problems that are faced during the implementation of GRC systems. The general background provided in the previous chapter, supported the identification of the GRC implementation lifecycle and the questions related to each phase of this lifecycle. The information was used in the 3rd phase, for developing the structured questions about the key stakeholders, the interests and activities of each lifecycle phase of the GRC implementation.

5.2.2. COLLECTION AND MANAGEMENT OF THE DATA

The research methodology and design was discussed before (chapter 3). The data from the interviews conducted were analysed through the phases of thematic analysis as described by Braun and Clarke (2006) in Table 3.6 . The first five phases will be analysed at the first part of the chapter and will help in building the framework for the analysis of GRC implementation process for the 3rd phase of the investigation. The sixth phase of the thematic analysis will comprise the analysis of the implementation process with the help of the framework that will be developed below.

As it was described by the interviewees in the 2nd phase of the investigation (chapter 4) there are various phases throughout the GRC implementation lifecycle. The implementation lifecycle was divided in four phases. The first part of the 3rd phase includes the identification and more detail about these phases of the GRC implementation lifecycle.

The experience cycle used in this study is matched to the lifecycle that was developed by Markus and Tanis (2000). This choice is based on the fact that this specific model is easier to use for predicting or explaining an organisation's actual enterprise system achievements and successes in a systematic way (Teoh and Pan, 2008). This experience cycle allows crucial

implications to be revealed at each stage of the implementation so that we could identify potential problems and provide suggestions to mitigate or resolve issues before they are propagated to the next implementation stage (Teoh and Pan, 2008).

Markus and Tanis (2000) have identified the following four phases in an enterprise experience lifecycle. These four phases are the following:

- Phase I: Project Chartering

- Phase II: The project (configure and rollout)

- Phase III: Shakedown

- Phase IV: Onward and upward

The framework will be employed in the case of GRC implementations; and will aim to provide a way of organising the investigation of the main topics in GRC implementation. It will provide a tool for the analysis of the main aspects of GRC implementations; and how the implementation can be successful. Therefore, the implementation of GRC will be analysed in all the four phases, as a first part for the 3rd phase. The first part will include the analysis of these four phases of the GRC implementation lifecycle, as well as the stakeholders involved in each phase and their activities and interests. The development of the 3rd investigation phase is depicted in the figure above (Figure 5.1).
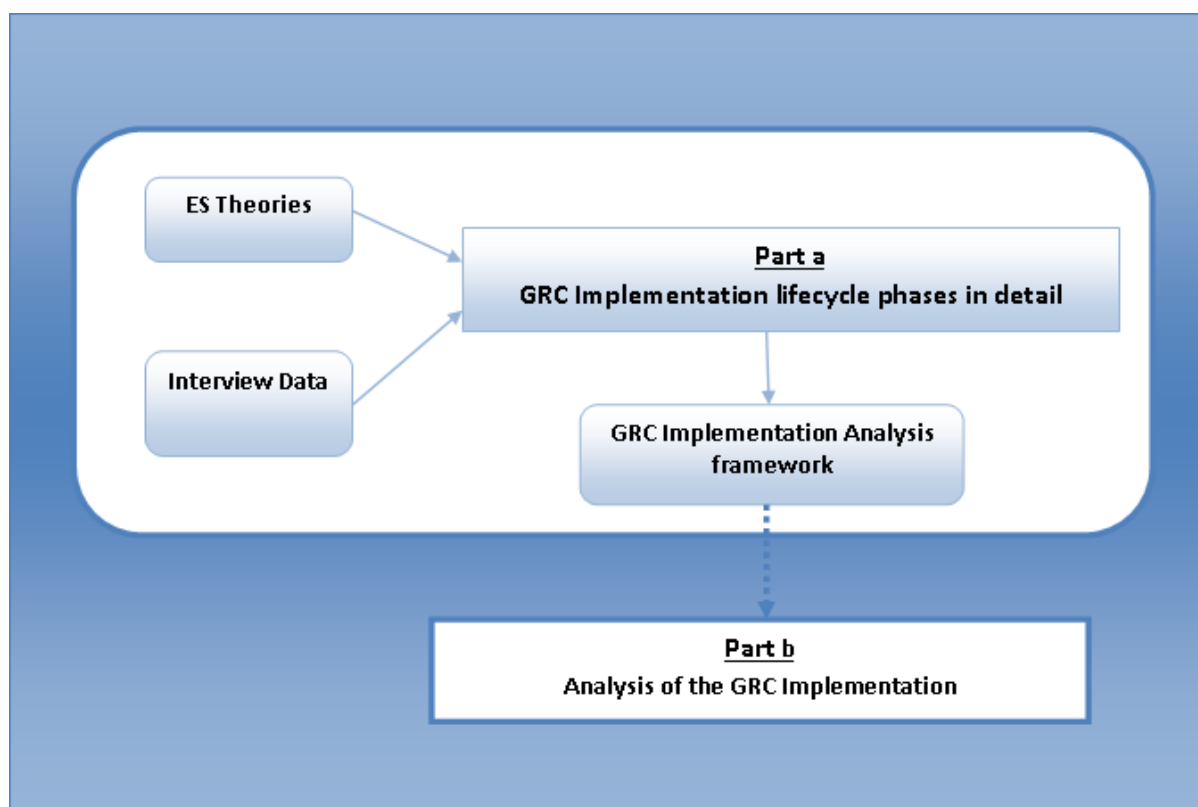
Figure 5.1: Development of the 3rd investigation phase

The first part (part a) of the 3rd phase will present the GRC implementation lifecycle and the details of the four phases of this lifecycle. Identifying the GRC implementation lifecycle; is the first part of the framework and will produce results to develop the final analysis framework for GRC implementation. The analysis framework will be used for the second part (part b) of the 3rd phase. It will introduce an in-depth analysis of the GRC implementation value factors (as these are given from the first part of the 3rd phase and with the combination of ES theories (Davenport et al., 2004).

5.3. PHASE 3: THE GRC IMPLEMENTATION PROCESS (PART A)

The first part of the 3rd phase of the investigation will include the description of the GRC implementation lifecycle. In doing so, the research of this first part focuses on identifying a) the phases of the lifecycle, b) the stakeholders involved in these phases and c) their activities and interests in each phase.

This part of the research due to the exploratory way of investigating the GRC implementation used structured interviews to capture empirical data from the field. The interviews addressed several issues and areas as these were identified by the literature

review and the previous two phases (1st Phase and 2nd Phase – Chapter 4). The aspects of the GRC implementation, developed in the previous chapter, provided a baseline for structuring the questions of the 3rd phase. The areas of study at the 3rd investigation phase were initially about the GRC implementation lifecycle. The identification of the lifecycle phases at the previous phases (1st and 2nd investigation) was used to organise the data gathered about the stakeholders involved in each lifecycle phase and their activities and interests. The structured questions at this phase were about each lifecycle phase, which are the stakeholders involved and what are their activities and interests in each of these phases.

Although the interviews were using a structured model of discussions, there was not used any specific terminology to avoid influencing the interviewees. Clarifications about the discussed areas were also addressed to help the respondents follow the structured discussion and they were later used to enrich the dataset of the empirical context.

5.3.1. THE GRC IMPLEMENTATION LIFECYCLE

The GRC implementation lifecycle is divided in four phases as these are matched to the Markus and Tanis (2000) experience lifecycle. The key aspects and the areas that will be presented at this section are the phases, the key stakeholders and the concerns and interests.

The **lifecycle phases** of the GRC implementation that will be described are divided as follows: the chartering, the project (configure and rollout), the shakedown, and the onward and upward phase.

The **key stakeholders** involved in the GRC implementation as these were described by the interviewees in the 2nd phase of the investigation are: the finance team, the audit team, the IT team, the GRC Systems vendor, the GRC consultants, the project manager, and project team members. These stakeholders are involved throughout the GRC implementation lifecycle experience.

The key concerns and interests of the stakeholders in each phase will be described in detail in the following subsections.

THE CHARTERING PHASE

The chartering phase of the GRC implementation project includes the clear view for an integrated GRC system. The key stakeholders of the organisation are seeking for an integrated GRC solution; and share a common understanding about the need of this solution. They understand that the organisation cannot further work without an integrated tool that can monitor and analyse the risks, which are in their systems. There are also some organisations that they are driven by an audit for the decision to implement a GRC system. These organisations do not share a clear view for a GRC system; however, the external regulatory and financial environment forces them to implement an integrated solution to assure the GRC principles inside their enterprise. The need of the IT system accountability is necessary and therefore the implementation of an integrated solution for GRC is one of the enterprise's challenges.

Key stakeholders that play important role at this phase are usually the finance team and the audit team, that force for an automated solution to their auditing and controlling problems. Other stakeholders involved are the IT team, the GRC Systems vendor that will provide the technological infrastructure to their problem and consultants to help the organisation to make the correct decision for the implementation.

Key concerns of the stakeholders as these were described by the interviewees of the 3rd phase include (Table 5.1):

- More proactive ways in terms of user access, process automation and improving processes.

- Optimised and standardised processes

- The need of a tool for monitoring and analysing the business processes as the system accountability plays an important role in the organisational development.

- One of the basic business goals is to continuously control and monitor their systems.

- They focus continuously on the development of a total solution to identify and inform the organisation about the risks.

- Once each risk is identified, mitigation is one of the basic concerns.

- Compliance with internal and external standards

In chartering phase also, the organisation has already a framework for controls to plug in the new technological solutions. The scope for the GRC implementation project is defined early and agreed; what is going to be delivered and by when.

Initially, the interview data are presented at the Table 5.2 with the interview data as these were discussed by the participants. The codes from the raw data and the themes defined at this phase are provided in the table afterwards (Table 5.2).

Interview data	Interviewee
'The key stakeholders of the organisation share a common understanding and seek for an integrated GRC solution'	Project manager 1
'The organisation cannot further work without an integrated tool that can monitor and analyse the risks, which are in the systems. Therefore the implementation of an integrated solution for a GRC system is one of the enterprise's challenges'	GRC expert 1
'Driven by an audit, the need of the IT system accountability is necessary, the need for a strict compliance tool is clear at this stage'	GRC expert 1
'Key stakeholders are concerned about more proactive ways in terms of user access, process automation and improving processes. The organisation needs a tool for monitoring and analysing the business processes'	IT consultant
'Optimised and standardised processes are the key stakeholders' concerns. System accountability plays an important role in the organisational development, and for that reason one of the basic business goals is to continuously control and monitor the systems'	Top manager 1

'Key stakeholders focus continuously on the development of a total solution to identify and inform the organisation about the risks. Once each risk is identified, mitigation is one of the basic concerns'	Top manager 1
'The organisation has already a framework for controls to plug in the new technological solutions'	GRC expert 1
'The scope for the GRC implementation project is defined early and agreed; what is going to be delivered and by when'	Project manager 1
'Compliance with internal and external standards is one of the primary concerns of the enterprise'	GRC expert 1

Table 5.1: Interview data for the chartering phase of GRC implementation lifecycle

Phase I: Project Chartering	
Codes (raw data)	**Themes**
The key stakeholders of the organisation are seeking for an integrated GRC solution	There is a clear view for an integrated GRC system from the organisational side
Key stakeholders share a common understanding about the need of an integrated GRC solution	
The organisation cannot further work without an integrated tool that can monitor and analyse the risks which are in the systems	
Driven by an audit, the need of the IT system accountability is necessary	
The implementation of an integrated solution for GRC is one of the enterprise's challenges	
Key stakeholders are concerned about more proactive ways in terms of user access, process automation and improving processes	The concern about more proactive ways in terms of

Optimised and standardised processes is one of key stakeholders' main concerns	user access, process automation and improving processes
The organisation needs a tool for monitoring and analysing the business processes	
System accountability plays an important role in the organisational development	
One of the basic business goals is to continuously control and monitor the systems	
Key stakeholders focus continuously on the development of a total solution to identify and inform the organisation about the risks	The interest for a GRC tool to assist the already existing control frameworks
The organisation has already a framework for controls to plug in the new technological solutions	
Our scope for the GRC implementation project is defined early and agreed; what is going to be delivered and by when	
Once each risk is identified; mitigation is one of the basic concerns	
Compliance with internal and external standards is one of the primary concerns of the enterprise	

Table 5.2: Interview data themes and dimensions for the chartering phase

THE PROJECT (CONFIGURE AND ROLLOUT) PHASE

The project phase comprises the actual implementation of the GRC system, where the operability of the system should be assured and the system configuration is the basic part of this. At this phase, the implementation of the GRC results in the integration of the key business processes. Roles are successfully assigned; who controls their content and who approves their risks is defined at this stage. All the systems related to GRC are connected to it and the user-access and authorisation levels are defined. The implementation team examines if the GRC fits successfully to the existing business processes and the existing technological solutions and if it results in the integration of key business processes.

The key stakeholders involved at this stage are mostly the project manager, and project team members. The project manager should bring all the stakeholders- teams together at this stage, to make the system up and running normally. All the stakeholders will have a part at this phase, as they need to provide the relevant information and help for the implementation team with their mission. The GRC consultants at this phase are playing an important role as well as they will help to familiarise with the system and solve any emerging problems.

Key concerns of this phase as were described during the interviews of the 3rd phase (Table 5.3) include:

- The organisation could operate a standard model of authorisations for business processes through the GRC implementation.

- The project to be supported fully by the finance team; as well as the IT team and the project manager

- The project had a strong project manager who could bring all the teams (finance, IT etc) together.

- All the project teams communicated well together and had a common understanding of the project objectives.

- The project team has full information about the existing systems and the users of them.

- A common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'

It is also crucial for the success of the implementation that the organisation provides full information about improving functions such as: risk information, user provisioning and business process ownership. In addition, full information about the roles that would be assigned; and what systems will be connected is necessary. People within the company should know the system and understand how it works as well as the IT basis team does the

configuration part of the GRC implementation themselves and they do not rely on consultancies for that part.

The first table (Table 5.3) presents the interview data for the configure and rollout phase as these were discussed by the participants. The codes from the raw data and the themes defined at this phase are provided in the table afterwards (Table 5.4).

Interview data	Interviewee
'The implementation of the GRC results in the integration of the key business processes. The GRC solution implemented in the enterprise should fit successfully to the existing business processes and the existing technological solutions. The ideal picture should be when all the systems related to GRC are connected to it and the user-access and authorisation levels were defined'	GRC expert 1
'Roles are successfully assigned; who controls their content and who approves their risks was defined'	GRC expert 1
'The implementation of the GRC results in the integration of key business processes'	Project manager 1
'The organisation couldn't operate a standard model of authorisations for business processes through the GRC implementation'	Top manager 1
'The IT basis team does the configuration part of the GRC implementation themselves and they don't rely on consultancies for that part'	IT consultant 1
'The project has to be supported fully by the finance team; as well as the IT team and the project manager. The project should have a strong project manager who could bring all the teams (finance, IT etc) together. Under this project management, all the project teams could easily communicate well together and achieve a common understanding of the project objectives'	GRC expert 1

'Throughout this phase, there is full information about the roles that would be assigned and what systems would be connected. The organisation provides usually full information about improving functions such as: Information risk, user provisioning and business process ownership'	Project manager 1
'There were people within the company knowing the system and understanding how it works, they have also full information about the existing systems and the users of them'	IT consultant
'Inside the organisation they should support a common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor''	GRC expert 1

Table 5.3: Interview data for the configure and rollout phase of GRC implementation lifecycle

Phase II: The project (configure and rollout)	
Codes (raw data)	**Themes**
The implementation of the GRC results in the integration of the key business processes	The strategic fit between the system and the business processes
Roles are successfully assigned; who controls their content and who approves their risks was defined	
All the systems related to GRC are connected to it and the user-access and authorization levels were defined	
GRC fits successfully to the existing business processes and the existing technological solutions	
The implementation of the GRC results in the integration of key business processes.	
The organisation couldn't operate a standard model of authorisations for business processes through the GRC implementation	The 'end to end' optimisation of the system

The IT basis team does the configuration part of the GRC implementation themselves and they don't rely on consultancies for that part	processes within the organisational environment
The project was supported fully by the finance team; as well as the IT team and the project manager	
The project had a strong project manager who could bring all the teams (finance, IT etc) together	
All the project teams communicated well together and had a common understanding of the project objectives	
The organisation provided full information about improving functions such as : Information Risk, user provisioning and business process ownership	The integration of the information from the control frameworks in the GRC system
There is full information about the roles that would be assigned and what systems would be connected	
There were people within the company knowing the system and understanding how it works	
The project team had full information about the existing systems and the users of them	
There is an common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'	

Table 5.4: Interview data themes and dimensions for the project phase (configure and rollout)

THE SHAKEDOWN PHASE

The shakedown phase comprises the part of the implementation where the stabilisation of the GRC system is ensured. At this phase, the system should work normally and the organisation should follow the GRC principles. This phase includes the part where all the processes are highly standardised and embedded in the systems after the GRC implementation. In addition, all controlling and financial transactions are processed automatically. The controlling processes are completely electronic and streamlined. The systems are directly linked to the GRC solution effectively.

The key stakeholders of this phase include all the teams, more specifically, the finance team, and the audit team that will work with the system following the controlling and financial standards. The GRC consultants, at this stage are trying to train and familiarise the IT team inside the organisation to operate the system and have in-hands experience to solve any emerging problems inside the organisation and avoid being reliant to external help in the future.

Key challenges that were described for this phase (Table 5.6) include:

- The systems function well without problems after implementation.

- System is up and running with the users having the access, they need.

- The systems are agile enabling them continually to adjust to any change of the users or the clients.

- The systems are compliant with internal and external standards and can give complete information about the IT risks in the organisation

- The systems 'force' the stakeholders to introduce new controls at a high frequency.

- User helpdesk staff is continuously trained on the newest controlling and IT auditing services

- The system-users use online GRC training tools through the systems.

At this phase also, the systems can provide information for the segregation of duties and the IT controls. All information in the systems can be accessed and viewed quickly and easily. Furthermore, the organisation can get customizable workflows through the GRC tool. Another necessary part of this phase is the IT basis team to be supported with state-of-the-art technology to be able to help the users with their GRC training and any questions.

The data from the interviews about this phase are presented at Table 5.5 for the shakedown phase. The table that follows presents the codes from the raw data and the themes defined at this phase (Table 5.6).

Interview data	Interviewee
'This phase can be identified during a GRC implementation project, when all the processes are highly standardised and embedded in the systems, all controlling and financial transactions are processed automatically, the controlling processes are electronic and streamlined and the systems are directly linked to our GRC solution effectively'	IT consultant 1
'There is a tracking mechanism of how often system-users use online training tools through the systems'	Project manager 1
'The systems are agile enabling the enterprise continuously to adjust to any change of the users or the clients. The systems 'force' the organisation to introduce new controls at a high frequency'	GRC expert 1
'User helpdesk staff are continuously trained on the newest controlling and IT auditing services'	GRC expert 1
'The systems can provide information for the segregation of duties and the IT controls. All information in the systems can be accessed and viewed quickly and easily'	Top manager 1
'The organisation can get customisable workflows through the GRC tool. The systems are compliant with internal and external standards and can give complete information about the IT risks in the organisation'	Project manager 1
'The IT basis team is supported with state-of-the-art technology to be able to help the users with their GRC training and any questions. The systems function well without problems after implementation. System is up and running with the users having the access they need'	GRC expert 1

Table 5.5: Interview data for the shakedown phase of GRC implementation lifecycle

Phase III: The shakedown	
Codes (raw data)	**Themes**
All the processes are highly standardised and embedded in our systems after the GRC implementation	The combination of people and technology in a strategically aligned GRC environment
All controlling and financial transactions are processed automatically	
The controlling processes are completely electronic and streamlined	
The systems are directly linked to our GRC solution effectively	
There is a tracking mechanism of how often system-users use online training tools through the systems	
The systems function well without problems after implementation	The elimination of the occurring system problems, while stabilising its functionality
System is up and running with the users having the access they need	
The systems are agile enabling them to continually adjust to any change of the users or the clients	
The systems 'force' us to introduce new controls at a high frequency	
User helpdesk staff are continuously trained on the newest controlling and IT auditing services	
The systems can provide information for the segregation of duties and the IT controls	The availability of the data about information risk, user provisioning and business process ownership from the IT basis team
All information in the systems can be accessed and viewed quickly and easily	
The organisation can get customizable workflows through the GRC tool	
The systems are compliant with internal and external standards and can give complete information about the IT risks in the organisation	
The IT basis team is supported with state-of-the-art technology to be able to help the users with their GRC training and any questions	

Table 5.6: Interview data themes and dimensions for the shakedown phase

THE ONWARD AND UPWARD PHASE

The onward and upward phase includes challenges regards new technological solutions that can be embedded to the current systems. At this phase, the IT basis team is highly motivated to satisfy system-users. People of the IT basis team share the GRC view of the enterprise and everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches.

The key stakeholders of this phase include mostly the IT team inside the organisation that operates the system and informs the organisation about the risks in the systems and any new innovative changes in the field of the GRC technology.

Challenges of this phase according to the interviewees of the 3rd phase (Table 5.7) include:

- The new patches and versions of the system function well.

- IT basis team is highly motivated in continuously developing new ideas.

- Everyone is committed to reducing costs and IT risks.

Information about what can be improved regards the risk management and controls of the enterprise can help emerging issues. In addition, IT basis team is highly motivated to avoid inconsistencies at the system and everyone from the team is committed to finance office and controlling- auditing team's satisfaction.

The discussions about this last implementation phase provided the following data from the interviews as these are presented at Table 5.8 for the onward and upward phase. The table 5.8 that follows is organising this raw data in codes and the themes are defined at this phase.

Interview data	Interviewee
'The IT basis team is highly motivated to satisfy system-users inside the organisation. Furthermore, the remuneration systems reward system-user satisfaction. The recruitment is aimed at service-oriented people that share the GRC view of the enterprise. Not only the employees should share a service oriented direction, also the management should be showcase of service-orientation'	Top manager 1
'At this last stage, everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches. IT basis team is highly motivated to continuously develop new ideas within the organisation, new ideas regarding the controlling and compliance processes through the GRC systems'	Project manager 1
'The remuneration systems reward efficiency in GRC practices. The recruitment is aimed at selecting efficient working people, that will share a common GRC view'	Project manager 1
'Everyone inside the organisation should be committed to reducing costs and IT risks'	GRC expert 1
'The top management should be a showcase of efficiency and IT basis team is highly motivated to avoid inconsistencies at the system. The remuneration systems reward creativity. The recruitment is aimed at selecting innovative and creative people. The management is showcase of creativity'	Top manager 1
'Everyone at this stage is committed to finance office and controlling auditing team's satisfaction'	GRC expert 1

Table 5.7: Interview data for the onward and upward phase of GRC implementation lifecycle

Phase IV — The onward and upward	
Codes (raw data)	**Themes**
IT basis team is highly motivated to satisfy system-users	The new technological solutions can be embedded to the current systems
The remuneration systems reward system-user satisfaction	
The recruitment is aimed at service-oriented people that share the GRC view of the enterprise	
Everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches	
The management is showcase of service-orientation	
IT basis team is highly motivated to continuously develop new ideas	The new versions of the system function can stabilise their functionality
The remuneration systems reward efficiency	
The recruitment is aimed at selecting efficient working people	
Everyone is committed to reducing costs and IT risks	
The management is showcase of efficiency	
IT basis team is highly motivated to avoid inconsistencies at the system	Information can be provided about controlling and audit improvements and emerging issues regarding the system
The remuneration systems reward creativity	
The recruitment is aimed at selecting innovative and creative people	
Everyone is committed to finance office and controlling- auditing team's satisfaction	
The management is showcase of creativity	

Table 5.8: Interview data themes and dimensions for the onward and upward phase

5.3.2. DIMENSIONS AND THEMES FROM PRIMARY DATA

The data from the interviews were analysed through the various phases of the thematic analysis and initial codes were generated from the data, leading to themes.

Further thematic analysis (Figure 5.2) was carried out to indicate the three dimensions coming from the themes in combination with the ES theories. Table 5.10 depicts the themes and dimensions as identified by the interview data.
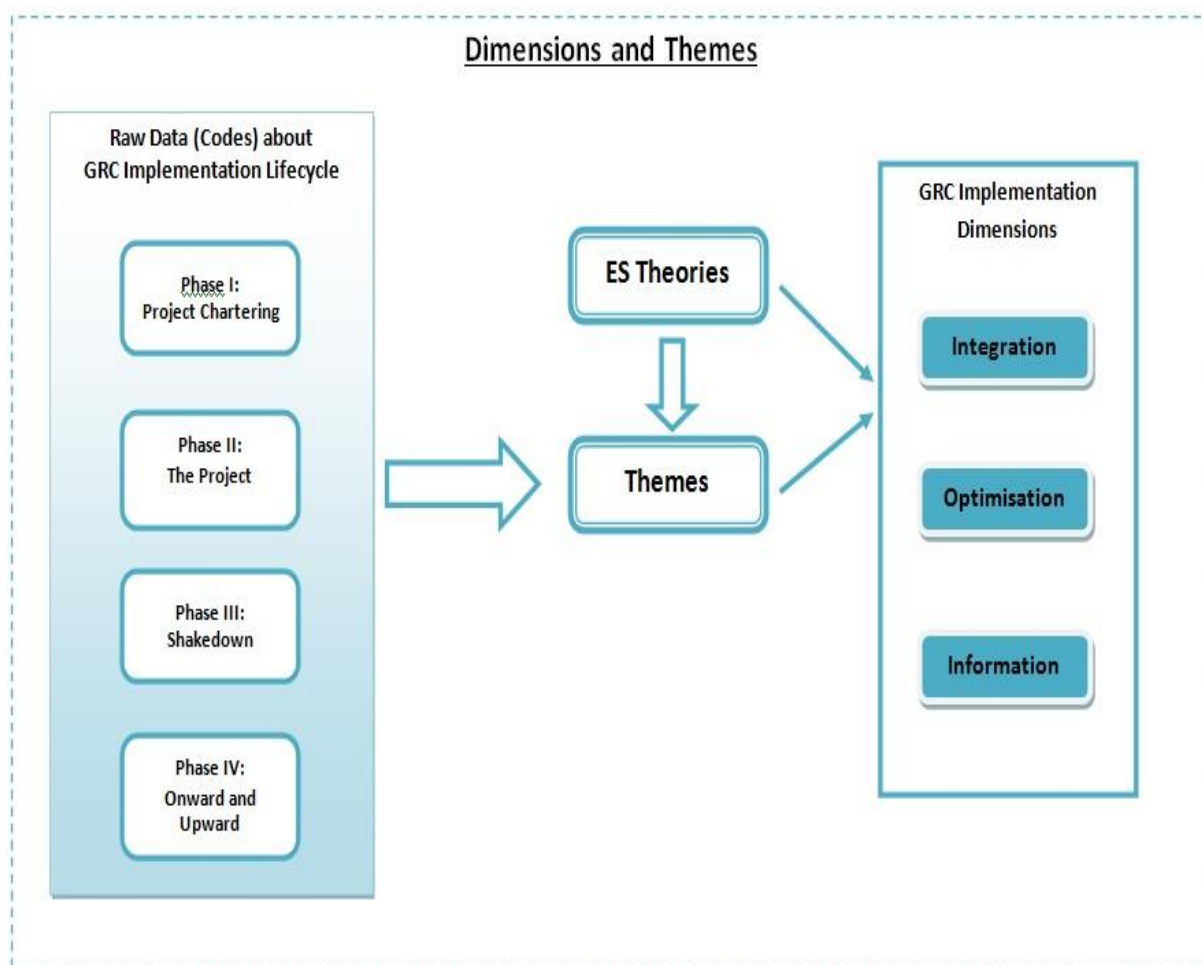
Figure 5.2: Dimensions and Themes from the interview data

The semi-structured interviews were conducted as an initial stage (2nd phase of the field investigation –chapter 4) and dealt with general aspects of the GRC implementation, the next stage involved more focused structured interviews to confirm the themes and sub-themes as these were identified in the previous step of the data analysis.

	Dimension 1: Integration	Dimension 2: Optimisation	Dimension 3: Information
Phase I: Project Chartering	There is a clear view for an integrated GRC system from the organisational side	The concern about more proactive ways in terms of user access, process automation and improving processes	The interest for a GRC tool to assist the already existing control frameworks
Phase II: The project (configure and rollout)	The strategic fit between the system and the business processes	The 'end to end' optimisation of the system processes within the organisational environment	The integration of the information from the control frameworks in the GRC system
Phase III: Shakedown	The combination of people and technology in a strategically aligned GRC environment	The elimination of the occurring system problems, while stabilising its functionality	The availability of the data about information risk, user provisioning and business process ownership from the IT basis team
Phase IV: Onward and Upward	The new technological solutions can be embedded to the current systems	The new versions of the system function can stabilise their functionality	Information can be provided about controlling and audit improvements and emerging issues regarding the system

Table 5.9: Interview data dimensions and themes

As it is presented at Table 5.9, the data from the interviews were analysed through three theory-driven dimensions (integration, optimisation, and information). The themes of the table include the key areas discussed by the stakeholders for each phase as they were interviewed about the GRC implementation process. The GRC implementation process was commonly divided in four stages by all the interviewees (as it is also divided in the previous section).

The ideas discussed about the **integration** theme included mainly themes as the 'clear view for an integrated GRC system' as this was initially expressed by the GRC experts involved in implementation projects. This idea was also highlighted by the rest of the stakeholders, as well as other subjects. The 'strategic fit of the business processes with the IT systems' which was initially identified as a key area from the IT consultant was also pointed out by the rest of the stakeholders and mostly the project manager.

The top manager of GRC implementation projects gave also great importance at the **optimisation** dimension, where the key idea was expressed about the project chartering phase when the 'organisation searches for proactive ways in terms of user access, process automation and improving processes' as it was addressed in the interviews. The necessity of an 'optimised GRC system' with 'stable functionality' and 'updated versions' was noted also as crucial mostly at the later stages of the implementation process.

The third dimension discussed was about the **information** required for the implementation process. At this point, the GRC expert involved in implementation projects discussed more specifically the idea that 'the control framework exists already in the organisation before the implementation', but the 'stakeholders seek for an integrated GRC technology for these controls'. The IT consultant referred to the importance of 'the information from the control framework' that needs to be 'plugged in the new technological solutions' when they implement the systems. In addition, regards the information required the common idea expressed was about the 'data about information risk, user provisioning and business process ownership' as these should be available by the IT basis team of the organisation. The table described before (Table 5.9) summarises the themes of the interviews conducted with the GRC implementation stakeholders.

5.3.3. THE DEVELOPMENT OF THE GRC ANALYSIS FRAMEWORK

As it is presented above, the data from the interviews were analysed through three theory-driven dimensions (integration, optimisation, and information). These three theory-driven dimensions were produced through the literature review of ES theoretical background and were matched to the data collected in the previous phase (2nd phase of the investigation).The themes of the table 5.9 include the key areas from the interviews about

the GRC implementation process. The GRC implementation process was divided in four phases and was matched to the ES experience lifecycle of Markus and Tanis (2000).

The theory-driven dimensions; were developed based on the enterprise value factors, proposed by Davenport, et al. (2004) and will be used as keystones for developing the GRC analysis framework. These three value drivers are developed in three categories (Davenport et al., 2002): (1) Integration, (2) Optimisation and (3) Information and will be applied through the whole implementation process, to help structuring the analysis framework by dividing the themes and sub-themes into three categories. However, these drivers-dimensions will be applied through different phases of the implementation process, as these were identified

5.4. CONCLUSION

Through the investigation of GRC implementation project success and with the help of enterprise system theories, the chapter has presented a framework for the analysis of the GRC implementation process. The study has shown that enterprise value factors can be identified through the analysis of the GRC implementation lifecycle coupled with the use of ES theories and the results can be used for achieving and developing successful implementation plans for the GRC strategy.

From a practical perspective, the framework will help enterprises to avoid silo-ed approaches of GRC and further risks that these include. Furthermore, they can develop and improve their GRC strategy for their competitive advantage and identify the critical success areas for their GRC implementation. From a theoretical perspective, the framework can enhance the knowledge about GRC systems and their implementation within the enterprises, as an attempt to gain a better insight of this new and not adequately explored area of enterprise systems. Secondly, it addresses missing parts of the existing GRC frameworks by focusing on their implementation process.

Moreover, this chapter gives an insight of the implementation process of these systems, and more specifically the implementation lifecycle, and their enterprise value factors. The next

chapter will discuss the results and the use of the framework as well as provide a consolidated framework as this comes from the analysis of the previous chapters.

CHAPTER 6:

DISCUSSION AND REFLECTION ON THE GRC IMPLEMENTATION PROCESS

Chapter 6: Discussion and reflection on the GRC implementation process

6.1. Introduction

The 3rd phase of the GRC further field investigation was conducted to provide more insight on the GRC implementation. The first part of the 3rd investigation phase included information about the GRC implementation lifecycle (previous chapter). The second part of the 3rd phase will be developed in this chapter. The focus of this chapter is to organise and analyse reflectively the GRC implementation process divided in three dimensions (as these were provided in the previous chapter). In the previous chapter; the first part of the 3rd investigation phase produced three dimensions (integration, optimisation, information) that should be highly considered in order to analyse the value coming from a GRC implementation and these were matched to the theoretical aspects related to the value of an enterprise system implementation.

The chapter presents the analysis of the three enterprise value dimensions (integration, optimisation and information). The three dimensions will provide a structure for the reflective analysis of the GRC implementation process. These three dimensions, combined with the GRC implementation aspects that were developed in Chapter 4, will provide the backbone of the GRC implementation analysis framework that will be produced for the analysis of the GRC implementation; and will assist further the researchers and organisations interested in implementing such solutions in their enterprise.

The chapter is structured as follows: initially the chapter starts with the presentation of the three value dimensions throughout the GRC implementation lifecycle and these are analysed in more detail, the reflective analysis of the three dimensions is followed by the summary of the 3rd investigation phase (both parts a and b). The chapter closes with the consolidated analysis framework as this is developed by the combination of all the aspects coming from the data from the three investigation phases.

6.2. PHASE 3: THE ENTERPRISE VALUE FACTORS THROUGHOUT THE GRC EXPERIENCE LIFECYCLE (PART B)

The second part (part b) of the 3rd investigation phase aims to demonstrate the use of Enterprise Experience lifecycle (Markus and Tanis, 2000) as a foundation for the implementation phases, coupled with the enterprise value drivers as these are presented by Davenport, Harris and Cantrell (2004). Therefore, the framework introduces a baseline for the research of integrated GRC implementation process and adopts both these phases and drivers in a single tool.

The codes and themes were identified by the interview data at the previous section (part a of the 3rd phase – in the previous chapter). The analysis framework as it was presented before will be used in this section for a further analysis of the data collected from both the semi-structured (2nd phase) and structured interviews (3rd phase). The previous section was divided in four parts; each part included the analysis of the implementation process phases. The analysis of each phase depicts the key aspects as these were described by the interviewees.

The purpose of this section is to develop an interpretation of the GRC implementation process drawing from the case dataset. The interviews will be analysed through three value drivers as these were suggested by Davenport et al (2002) and were identified as dimensions of the implementation process in the previous chapter. The key areas discussed by the stakeholders for each of these drivers/ dimensions were presented in four phases (in the previous section). The field study revealed that the expected benefits from a GRC implementation could be achieved if the implementation process is successful. With this aim, the organisations should target for three core areas when they implement such systems. These three areas and the expected dimensions related to each of them will be discussed in this chapter.

6.2.1. THE INTEGRATION DIMENSION THROUGHOUT THE IMPLEMENTATION LIFECYCLE

The GRC systems as these are developed within the organisational environment; are highly integrated solutions, and due to that integration, the enterprise can have a full view of the

business processes in order to control and operate them (Rasmussen, 2009). The integration aspect of GRC tools should be established, in order to consider the implementation process as a successful one (Nissen and Marekfia, 2013).

As it was also developed at the literature review (Chapter 2); Racz, et al (2010c) divide the GRC integration in two levels: horizontal and vertical (Racz et al., 2010c). The first refers to the integration of the three disciplines (Governance, Risk and Compliance) together and the second to the integration of the GRC system with the business processes. There is also another grouping for the GRC integration by Nissen and Marekfia (2013) which includes four categories: a) Textual integration, b) Operational processes integration, c) Methodological integration, d) IT integration

The interview themes collected throughout the interviews with the stakeholders include both the types of GRC integration, but mostly the integration of the GRC system with the business processes. The thematic analysis of Chapter 5 came out to indicate the three dimensions coming from the themes in combination with the ES theories. The four summarising themes developed through the thematic analysis of Chapter 5 (Table 5.10) which are included in the 'integration' dimension are the following:

1. There is a clear view for an integrated GRC system from the organisational side

2. The strategic fit between the system and the business processes

3. The combination of people and technology in a strategically aligned GRC environment

4. The new technological solutions can be embedded to the current systems

One of the basic requirements of such a system is that all the enterprise systems are integrated to the GRC environment with the view to provide **a clear picture of the risks inside the organisation**. The clear view of the organisational environment can be also considered when analysing the optimisation dimension of the GRC systems. However, the integration of the GRC system with the business processes and the other enterprise systems used in the current organisational environment is related to the vision of the enterprise architecture as this was also supported by Rasmussen (2009), where the OCEG capability

model is suggested as the roadmap to develop the integrated view of the GRC environment (Rasmussen, 2009; OCEG, 2007). Therefore, when analysing the GRC implementation process, as it is also supported by the literature and the interview dataset (themes), integration is one of the important requirements for a successful implementation that can add value to the organisation.

The integration dimension for a GRC implementation describes the whole view of the enterprise for an integrated GRC environment. This integrated GRC environment comprises a common understanding of the GRC processes from the key stakeholders involved. Hence, the whole organisation has to work with the new integrated GRC tool that monitors and analyses the risks, which are in the systems, although each of the stakeholders may have different interests for each business process.

Another theme discussed through the interviews was **the strategic fit between the GRC system and the business processes**; that is also included in the vertical integration (Racz et al., 2010c) and operational process integration (Nissen and Marekfia, 2013). According to this type of integration; the system should standardise and embed all the business processes in order the system to deliver the best business value for the enterprise. If these are followed, the controlling and the financial transactions will be processed automatically and the goal of streamlined transaction processes will be achieved.

In the operational process integration (Nissen and Marekfia, 2013) **the combination of people and technology in a strategically aligned GRC environment** should be considered. The stakeholders should follow the GRC disciplines inside the organisation as well as the roles have to be successfully assigned; who controls their content and who approves their risks needs to be defined. All the systems related to GRC are connected to it and the user-access and authorisation levels should be defined. If this fit is achieved from the start, the GRC integration will add value to the whole implementation process.

The IT integration (Nissen and Marekfia, 2013) was also supported by the interview themes; especially in the later stages of the implementation lifecycle (shakedown last stages and onward and upward phase). As it was discussed **the new technological solutions has to be embedded to the current systems**; especially at the later stages. At this point the GRC tool

is already implemented and integrated with the business and organisational processes, and the operational stability is ensuring the integration of the system from an organisational perspective. However, also the IT integration of the system should be assured, as the system will control and help the IS auditing process. For these reasons, the GRC tool should provide integration with all the systems used in the organisational environment and the updates of the system (that will be developed in the future) should ensure that part of integration.

The integration dimension is mostly observed as an operational integration concern at the first two phases of the implementation process (chartering phase and configure-rollout phase) and therefore it should take great attention from the implementation team when they launch the project. At the two later stages (Shakedown and Onward and Upward phase) the integration dimension refers mostly to the technological integration of the GRC system with the existing systems of the organisation, and should be considered when the stakeholders develop IS auditing processes.

The themes and sub-themes for the integration dimension are provided below for a detailed review (Table 6.1).

INTEGRATION		
	Themes	**Sub-themes**
Phase I: Project Chartering	There is a clear view for an integrated GRC system from the organisational side	The key stakeholders of the organisation are seeking for an integrated GRC solution
		Key stakeholders share a common understanding about the need of an integrated GRC solution
		The organisation cannot further work without an integrated tool that can monitor and analyse the risks which are in the systems
		Driven by an audit, the need of the IT system accountability is necessary
		The implementation of an integrated solution for GRC is one of the enterprise's challenges
Phase II: The project	The strategic fit between the system and the	The implementation of the GRC results in the integration of the key business processes

(configure and rollout)	business processes	Roles are successfully assigned; who controls their content and who approves their risks was defined
		All the systems related to GRC are connected to it and the user-access and authorisation levels were defined
		GRC fits successfully to the existing business processes and the existing technological solutions
		The implementation of the GRC results in the integration of key business processes.
Phase III: Shakedown	The combination of people and technology in a strategically aligned GRC environment	All the processes are highly standardised and embedded in our systems after the GRC implementation
		All controlling and financial transactions are processed automatically
		The controlling processes are completely electronic and streamlined
		The systems are directly linked to our GRC solution effectively
		There is a tracking mechanism of how often system-users use online training tools through the systems
Phase IV: Onward and Upward	The new technological solutions can be embedded to the current systems	IT basis team is highly motivated to satisfy system-users
		The remuneration systems reward system-user satisfaction
		The recruitment is aimed at service-oriented people that share the GRC view of the enterprise
		Everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches
		The management is showcase of service-orientation

Table 6.1: Integration dimension

6.2.2. THE OPTIMISATION DIMENSION THROUGHOUT THE IMPLEMENTATION LIFECYCLE

The optimisation dimension in an enterprise system implementation; and more specifically the GRC implementation, focuses mostly on a streamlined, automated controlling environment, where the operations are not facing obstacles by access control functions when it is required. The GRC previous research refers to the optimisation dimension of the GRC tools by providing frameworks and strategies to develop optimisation plans for the GRC solutions of the organisations (Chapter 1 – Table 1.1). In order to develop the optimisation strategy of the GRC tools OCEG (2009) provides insight to the practices and activities that should be developed to achieve this goal and Mitchell (2007) suggests a framework for 'principled performance' as a roadmap for the optimisation of a GRC environment (OCEG, 2007; Mitchell, 2007). Other studies in the area provide solutions and suggestions with the same direction, analysing steps and processes in Models and Frameworks as a guide to drive better operational performance with the use of GRC tools (Paulus, 2009; Frigo and Anderson, 2009; Tapscott, 2006; PricewaterhouseCoopers, 2004).

The dataset from the interviews (Chapter 5) includes discussions about the following four themes regarding the GRC optimisation dimension throughout the implementation lifecycle:

1. The concern about more proactive ways in terms of user access, process automation and improving processes

2. The 'end to end' optimisation of the system processes within the organisational environment

3. The elimination of the occurring system problems, while stabilising its functionality

4. The new versions of the system function can stabilise their functionality

The optimisation area of the GRC implementation involves **proactive ways in terms of user access, process automation, and improving processes.** In other words, the enterprises try to prevent the risk of not having a stabilised GRC environment, with the use of optimised GRC systems. Following this aim, the key stakeholders are concerned about optimised and standardised processes and therefore the organisation needs a tool for monitoring and analysing the business processes, in order to prevent any possible risk related to the GRC

principles. As systems' accountability plays an important role in the organisational development, one of the basic business goals is to continuously control and monitor the systems, in order to assure a proactive attitude to risk, but also a reactive as well; in cases that the risk was not forecasted.

A basic challenge the implementation team has to overcome; in order to achieve this level of optimisation, is the fact that all teams (finance team, IT team etc) have to be together to support the implementation project as well as to communicate and understand fully the project objectives. The necessity of optimised GRC systems with stable functionality can also be crucial for the system optimisation during and after the implementation process. In that part, the optimisation dimension includes **the 'end to end' optimisation of the system processes within the organisational environment.**

The system functionality has to be established in the implementation process and for that reason **the elimination of the occurring system problems, can stabilise its functionality.** This can happen if system is up and running with the users having the access they need and the systems are agile enabling them to continually adjust to any change of the roles and authorisations.

The systems have to introduce new controls at a high frequency following the newest controlling and IT auditing service trends. The new versions of the system function can stabilise their functionality. The functionality of the GRC system, which is highly related to the optimisation dimension, should also be included in **the new versions of the system functions,** in order to stabilise a functional GRC environment.

The project team focuses highly on the optimisation objective at the second and third phase of the implementation process (configure-rollout and shakedown phase).

The themes and sub-themes for the optimisation dimension are provided below for a detailed review (Table 6.2).

OPTIMISATION		
	Themes	**Sub-themes**
Phase I: Project Chartering	The concern about more proactive ways in terms of user access, process automation and improving processes	Key stakeholders are concerned about more proactive ways in terms of user access, process automation and improving processes
		Optimised and standardised processes is one of key stakeholders' main concerns
		The organisation needs a tool for monitoring and analysing the business processes
		System accountability plays an important role in the organisational development
		One of the basic business goals is to continuously control and monitor the systems
Phase II: The project (configure and rollout)	The 'end to end' optimisation of the system processes within the organisational environment	The organisation couldn't operate a standard model of authorisations for business processes through the GRC implementation
		The IT basis team does the configuration part of the GRC implementation themselves and they don't rely on consultancies for that part
		The project was supported fully by the finance team; as well as the IT team and the project manager
		The project had a strong project manager who could bring all the teams (finance, IT etc) together
		All the project teams communicated well together and had a common understanding of the project objectives

Phase III: Shakedown	The elimination of the occurring system problems, while stabilising its functionality	The systems function well without problems after implementation
		System is up and running with the users having the access they need
		The systems are agile enabling them to continually adjust to any change of the users or the clients
		The systems 'force' us to introduce new controls at a high frequency
		User helpdesk staff are continuously trained on the newest controlling and IT auditing services
Phase IV: Onward and Upward	The new versions of the system function can stabilise their functionality	IT basis team is highly motivated to continuously develop new ideas
		The remuneration systems reward efficiency
		The recruitment is aimed at selecting efficient working people
		Everyone is committed to reducing costs and IT risks
		The management is showcase of efficiency

Table 6.2: Optimisation dimension

6.2.3. THE INFORMATION DIMENSION THROUGHOUT THE IMPLEMENTATION LIFECYCLE

For the GRC implementation process, the information dimension is very crucial, as this will provide all the setting up instructions and frameworks for the system, and will provide the suitable GRC environment for the organisation that implement such a system, according to the risk appetite of the enterprise. The information is required not only for the implementation period, but also for the post-implementation, as this data and information that the system is operating, will give the risk reports and will inform the organisation for further decisions.

The principles of GRC are not new, what is introduced with the GRC integrated approach, always existed for every well-run company but they were applied in manual or partially automated ways, as it was also mentioned in a previous chapter (Chapter 1). Goals as identifying risks, financial reporting, and complying with the regulations, always were parts of a company's obligations; regarding the information, the organisation had to provide to the stakeholders and the government. The urgency of various issues within the last decade forced companies to adopt a holistic approach to 'G', 'R' and 'C' principles for their best performance and their strategic advantage. The rise of compliance regulations, coupled with the increasing need of sensitive data security are some of the challenges enterprises are facing nowadays. The organisations need a total solution to inform and identify the risks in place and also have the required information in place, to follow the existing compliance regulations from external or internal pressures.

The discussion with the interviewees provided data mostly about all the information associated to the implementation of the GRC. In addition, the dataset (from the interviews) provided insight on how the information dimension can exist in the post-implementation period for sustaining a successful GRC environment inside the organisation. The themes produced for the information dimension were:

1. The interest for a GRC tool to assist the already existing control frameworks

2. The integration of the information from the control frameworks in the GRC system

3. The availability of the data about information risk, user provisioning and business process ownership from the IT basis team

4. Information can be provided about controlling and audit improvements and emerging issues regarding the system

The control framework exists already in the organisation before the implementation; as it was analysed in Chapter 4 (Section 4.3.3), however the stakeholders seek for an integrated GRC technology for these controls. That **interest for a GRC tool to assist the already existing control frameworks** can be observed during the whole implementation lifecycle and in the after-implementation period. The organisation operated manually or with

partially automated solutions the GRC principles; for that reason key stakeholders focus on the continuous development of a total solution to identify and inform the organisation about the risks and to comply with the internal and external standards. The GRC implementation is presented as a solution to assist the already existing frameworks of control and risk management in a more holistic way and therefore the existing frameworks should be embedded in the new solution, for achieving the most through the information they can provide about the previous organisational environment.

The information from the control framework needs to be integrated in the new technological solutions (GRC tools) throughout the implementation process. That can be achieved if the organisation provides full information about improving functions such as: Information Risk, user provisioning and business process ownership. Information also should be provided regarding areas of the roles that would be assigned and what systems will be connected. The project team needs full information about the existing systems and the users of them. The project team also has to train the people within the company about the system in order to understand how it works. Following the same aim, there should be a common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'

All information in the systems can be accessed and viewed quickly and easily. For the successful GRC implementation, the information should be provided in all the steps of the implementation to the implementation team and the key stakeholders. All the data and information required to set up the system should be available especially in the shakedown phase of the implementation where the stabilisation of the system is secured. **The availability of the data about information risk, user provisioning and business process ownership from the IT basis team** is a basic requirement at this stage.

INFORMATION		
	Themes	**Sub-themes**
Phase I: Project Chartering	The interest for a GRC tool to assist the already existing control frameworks	Key stakeholders focus continuously on the development of a total solution to identify and inform the organisation about the risks
		The organisation has already a framework for controls to plug in the new technological solutions
		Our scope for the GRC implementation project is defined early and agreed; what is going to be delivered and by when
		Once each risk is identified; mitigation is one of the basic concerns
		Compliance with internal and external standards is one of the primary concerns of the enterprise
Phase II: The project (configure and rollout	The integration of the information from the control frameworks in the GRC system	The organisation provided full information about improving functions such as : Information Risk, user provisioning and business process ownership
		There is full information about the roles that would be assigned and what systems would be connected
		There were people within the company knowing the system and understanding how it works
		The project team had full information about the existing systems and the users of them
		There is an common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'
Phase III: Shakedown	The availability of the data about information	The systems can provide information for the segregation of duties and the IT controls

	risk, user provisioning and business process ownership from the IT basis team	All information in the systems can be accessed and viewed quickly and easily
		The organisation can get customizable workflows through the GRC tool
		The systems are compliant with internal and external standards and can give complete information about the IT risks in the organisation
		The IT basis team is supported with state-of-the-art technology to be able to help the users with their GRC training and any questions
Phase IV: Onward and Upward	Information can be provided about controlling and audit improvements and emerging issues regarding the system	IT basis team is highly motivated to avoid inconsistencies at the system
		The remuneration systems reward creativity
		The recruitment is aimed at selecting innovative and creative people
		Everyone is committed to finance office and controlling-auditing team's satisfaction
		The management is showcase of creativity

Table 6.3: Information dimension

At the last phase of the implementation, the onward and upward phase, where the implementation of the system is finishing and the post-implementation period will start, the information dimension is very important. At this phase **information can be provided about controlling and audit improvements and emerging issues regarding the system** The GRC will provide the information required by the organisation in order to monitor and control the whole enterprise landscape and secure that the GRC program of the company is in place and it has stabilised its functionality.

The information required for the project is a key aspect for the two most crucial phases of the implementation process (configure-rollout and shakedown phase) and for the last phase (onward and upward phase) where information is also highly required.

The themes and sub-themes for the optimisation dimension are provided below for a detailed review (Table 6.3).

6.3. SUMMARY OF THE FINDINGS FROM THE 3RD PHASE

The previous sections provided detailed analysis regarding the lifecycle phases of the GRC implementation as well as the enterprise value factors throughout the lifecycle. The first part of the 3rd field investigation phase included all the codes and the themes developed from the dataset and assisted the analysis of each phase. The analysis of the lifecycle was followed by the analysis of the three enterprise value drivers (integration, optimisation, information) which included the basic theoretical dimensions that emerged from the dataset from the 2nd and the 3rd phases of field investigation.

A summary of all the themes and sub-themes divided in the three dimension categories and organised for each of the lifecycle implementation phases; are categorised in the table below, for further reference and detail (Table 6.4). The framework will be further discussed and analysed in the following section, where the analysis will provide further insight on how this framework and the results of the research can be used further for the GRC implementation area.

Enterprise value factors	Lifecycle phase	Main themes	Main sub-themes (codes)
INTEGRATION	Phase I: Project Chartering	There is a clear view for an integrated GRC system from the organisational side	The key stakeholders of the organisation are seeking for an integrated GRC solution
			Key stakeholders share a common understanding about the need of an integrated GRC solution
			The organisation cannot further work without an integrated tool that can monitor and analyse the risks which are in the systems
			Driven by an audit, the need of the IT system accountability is necessary
			The implementation of an integrated solution for GRC is one of the enterprise's challenges
	Phase II: The project (configure and rollout	The strategic fit between the system and the business processes	The implementation of the GRC results in the integration of the key business processes
			Roles are successfully assigned; who controls their content and who approves their risks was defined
			All the systems related to GRC are connected to it and the user-access and authorisation levels were defined
			GRC fits successfully to the existing business processes and the existing technological solutions
	Phase III: Shakedown	The combination of people and technology in a strategically	All the processes are highly standardised and embedded in our systems after the GRC implementation
			All controlling and financial transactions are processed automatically

		aligned GRC environment	The controlling processes are completely electronic and streamlined
			The systems are directly linked to our GRC solution effectively
			There is a tracking mechanism of how often system-users use SAP online training tools through the systems
	Phase IV: **Onward and Upward**	The new technological solutions can be embedded to the current systems	IT basis team is highly motivated to satisfy system-users
			The remuneration systems reward system-user satisfaction
			The recruitment is aimed at service-oriented people that share the GRC view of the enterprise
			Everyone is committed to continuous service improvements and updating the GRC systems with new upgrades and patches
			The management is showcase of service-orientation
OPTIMISATION	**Phase I:** **Project Chartering**	The concern about more proactive ways in terms of user access, process automation and improving processes	Key stakeholders are concerned about more proactive ways in terms of user access, process automation and improving processes
			Optimised and standardised processes is one of key stakeholders' main concerns
			The organisation needs a tool for monitoring and analysing the business processes
			System accountability plays an important role in the organisational development
			One of the basic business goals is to continuously control and monitor the systems
	Phase II: **The project (configure and rollout**	The 'end to end' optimisation of the system processes within the organisational	The organisation couldn't operate a standard model of authorisations and for business processes through the GRC implementation
			The IT basis team does the configuration part of the GRC

		environment	implementation themselves and they don't rely on consultancies for that part
			The project was supported fully by the finance team; as well as the IT team and the project manager
			The project had a strong project manager who could bring all the teams (finance, IT etc) together
			All the project teams communicated well together and had a common understanding of the project objectives
	Phase III: **Shakedown**	The elimination of the occurring system problems, while stabilising its functionality	The systems function well without problems after implementation
			System is up and running with the users having the access they need
			The systems are agile enabling them to continually adjust to any change of the users or the clients
			The systems 'force' us to introduce new controls at a high frequency
			User helpdesk staff are continuously trained on the newest controlling and IT auditing services
	Phase IV: **Onward and Upward**	The new versions of the system function can stabilise their functionality	IT basis team is highly motivated to continuously develop new ideas
			The remuneration systems reward efficiency
			The recruitment is aimed at selecting efficient working people
			Everyone is committed to reducing costs and IT risks
			The management is showcase of efficiency
INFORMAT	**Phase I:**	The interest for a GRC tool to assist	Key stakeholders focus continuously on the development of a total solution to identify and inform the organisation about the risks

	Project Chartering	the already existing control frameworks	The organisation has already a framework for controls to plug in the new technological solutions
			Our scope for the GRC implementation project is defined early and agreed; what is going to be delivered and by when
			Once each risk is identified; mitigation is one of the basic concerns
			Compliance with internal and external standards is one of the primary concerns of the enterprise
	Phase II: **The project (configure and rollout**	The integration of the information from the control frameworks in the GRC system	The organisation provided full information about improving functions such as : Information Risk, user provisioning and business process ownership
			There is full information about the roles that would be assigned and what systems would be connected
			There were people within the company knowing the system and understanding how it works
			The project team had full information about the existing systems and the users of them
			There is an common understanding of the key stakeholders of the ongoing process introduced by GRC - 'Clean - Stay clean- Monitor'
	Phase III: **Shakedown**	The availability of the data about information risk, user provisioning and business process ownership from the IT basis team	The systems can provide information for the segregation of duties and the IT controls
			All information in the systems can be accessed and viewed quickly and easily
			The organisation can get customizable workflows through the GRC tool
			The systems are compliant with internal and external standards and can give complete information about the IT risks in the organisation
			The IT basis team is supported with state-of-the-art technology to be able to help the users with their GRC training and any questions

Phase IV: Onward and Upward	Information can be provided about controlling and audit improvements and emerging issues regarding the system	IT basis team is highly motivated to avoid inconsistencies at the system
		The remuneration systems reward creativity
		The recruitment is aimed at selecting innovative and creative people
		Everyone is committed to finance office and controlling- auditing team's satisfaction
		The management is showcase of creativity

Table 6.4: Summarising table of the themes and subthemes

6.4. ANALYSING THE GRC IMPLEMENTATION PROCESS

The research model adopted in this study followed the field study strategy for dividing the research in three phases and further progress with these phases. The data from each phase provided themes and codes that were applied to form the interviews and the setting for the following phases. The decision to design this research in three phases is based on the intention to examine the aspects of the enterprise systems implementation in general and afterwards investigate if the aspects of enterprise systems implementation can be found also in the case of GRC implementation.

The main aim was to identify first the similarities, differences of these implementation processes, and distinguish the importance to follow a more specific approach for the implementation of GRC systems. Once the similar and different aspects of the implementation process were identified, the next step was the further analysis of the GRC implementation process in detail (in Chapter 5). The more detailed analysis of the GRC implementation process from the Chapter 5 was followed by the use of enterprise systems theories in the case of the GRC implementation (Chapter 6) for a further discussion related to the GRC implementation and the enterprise value factors that can be identified through the whole implementation lifecycle.

The previous chapter (Chapter 5) and section 6.2 provided detailed analysis regarding the lifecycle phases of the GRC implementation as well as the enterprise value factors

throughout the lifecycle. The first part of the 3rd field investigation phase included all the codes and the themes developed from the dataset and assisted the analysis of each phase. The analysis of the lifecycle was followed by the analysis of the three enterprise value drivers (integration, optimisation, information) which included the basic theoretical dimensions that emerged from the dataset from the 2nd and the 3rd phases of field investigation. Section 6.3 provided a summary of all the themes and sub-themes divided in the three dimension categories and organised for each of the lifecycle implementation phases.

The data analysis was based on the theoretical background which was used to build the analysis framework for the GRC implementation process. This framework was initially developed for structuring the analysis and could provide a more clear view of the adoption lifecycle phases and the enterprise value drivers. The framework was validated for its functionality by the interviewees that confirmed that it can be used for the GRC implementation, and could provide a structured base for the analysis of the data gathered through the interviews.

6.4.1. BRIEF ANALYSIS FOR THE GRC IMPLEMENTATION PROCESS USING THE THREE ELEMENTS OF THE FRAMEWORK

This section includes the analysis for the GRC implementation (as it is enhanced from the 2nd and 3rd investigation phases). The framework that was developed from the theoretical background of ES implementation assisted in structuring the analysis of the GRC implementation. The data gathered will be further discussed and analysed in this section, where this analysis will provide further insight on how the framework assisted the analysis and the results of the research can be used further for the GRC implementation area. The analysis framework is consisted of the aspects, the lifecycle phases and the dimensions as these were presented in the previous chapters. In chapter 2, Figure 2.13 presented the analysis framework used for the analysis of the GRC process. The output based on this framework is following and provides a brief analysis of the three elements related to the GRC implementation process.

ASPECTS

The GRC implementation aspects, as these were identified from the previous sections can be summarised in seven categorisations:

1. **Goals and Objectives**

2. **Purpose of the system**

3. **Key stakeholders**

4. **Methodologies prior the implementation**

5. **Requirements prior the implementation (organisational and technical)**

6. **Critical success factors**

7. **Problems / Barriers**

These categories produced results through the analysis of the interview data that included semi-structured interviews with GRC implementation stakeholders. The seven aspects of the GRC implementation process should be identified and considered before the implementation of these tools, in order to develop a strategy plan for the actual GRC implementation process.

Goals and Objectives of the GRC implementation in general are three and they are related to the GRC principles that should be followed by the organisations. These were identified as the strategic financial reporting and controlling, efficient and effective business operations, compliance with the laws and regulations.

Purpose of the system the purpose of the system or the orientation of the GRC system in other words should be early agreed and defined by the stakeholders, to understand also the need of such a system in their organisation. GRC systems can be defined as risk management, control monitoring, and information sharing oriented systems, and therefore the implementation project should follow such a direction to foster this orientation.

Key stakeholders of the GRC implementation in general can be recognised as the project manager, GRC experts, Finance team, Audit team, IT team, consultants, GRC Systems vendor, and project team members. These should work together with a common understanding of the system, although sometimes their interests for the GRC tool are conflicting and can cause problems. However, a project manager with strong leading skills and with the support of an ultimate sponsorship from top levels can bring all these stakeholders together for the successful implementation.

Methodologies prior the implementation include manual, non-automated frameworks of control or other controlling systems that were following the GRC principles and facilitated the auditing and controlling processes of the organisation.

Requirements prior the implementation (organisational and technical) comprise the preparation of the GRC implementation project and include the development of the business case and defining of the risk requirements. In addition, other requirements are the identification of the risks, the roles; and who owns each risk, controls their content and approve those risks. The current state analysis will provide the current GRC framework to start with and this will be a key step for the chartering phase of the GRC implementation process. Other requirements that should be considered are the selection of software and software vendor, as well as understanding the IT infrastructure of the organisation and the IT landscape (what systems they use). From a business perspective the necessary procedures that should be considered are the development of a project plan (how the system will be rolled out, supported, maintained and upgraded), the change management plan, budget planning and the decision to proceed the plan.

Critical success factors of the implementation process of the GRC tools can be identified as the top management support and key stakeholders involved, as it was also mentioned before. These factors can support the project team and the project manager in achieving a common understanding about the need of a GRC solution, and easily cascade information throughout the organisation improving various functions. Other factors are included within the project planning area as to define the GRC system requirements, identify of the process owners and the risks associated with it and training of internal people to be able to manage the system.

Problems / Barriers that should be considered before launching a GRC implementation project, as well as during the implementation process itself can be initially the technical complexity of the GRC solutions. Other problems that can be identified and avoided from the start can be the fact that their company is not ready for a GRC solution that can happen if there is no common understanding for the need of such a tool. In addition, the organisation is not prepared for a GRC tool, if there is no control framework already in the organisation that can help the 'move' to a more 'strict' environment. Another very serious issue that is commonly observed is the fact that there are conflicting priorities within the organisation, which can be avoided if the project manager can bring all the stakeholders together to work with a common view. A complicated GRC solution that is difficult to work, can be another barrier for the successful implementation as the organisation cannot work with such a tool and therefore the choice of the GRC vendor seems as crucial. The lack of training of the IT team of the organisation on the GRC system area can be another problem, which can be avoided if the implementation team provide the sufficient training inside the organisation before the end of the project.

IMPLEMENTATION PHASES (LIFECYCLE)

The GRC implementation lifecycle was divided in four phases from the interview data and these were matched to the Markus and Tanis (2000) experience lifecycle. The GRC implementation lifecycle is a part of the consolidated GRC analysis framework, as these four phases of the implementation assisted in defining in a more structured way the key aspects and the areas of the implementation; like the key stakeholders, the concerns and interests in each of these phases.

The *lifecycle phases* of the GRC implementation were divided as follows in four categories: the chartering phase, the project (configure and rollout) phase, the shakedown phase, and the onward and upward phase.

The *key stakeholders* involved in the GRC implementation as these were described by the interviewees in the 2nd phase of the investigation are: the finance team, the audit team, the IT team, the GRC Systems vendor, the GRC consultants, the project manager, and project

team members. These stakeholders are involved throughout the GRC implementation lifecycle experience.

Once these (phases and key stakeholders) were identified, the key interests and concerns in each phase should be investigated. The data from the interviews were analysed through the various phases of the thematic analysis and initial codes were generated from the data, leading to themes. Further thematic analysis led to three dimensions; these three dimensions were developed from the themes in combination with the ES theories.

ENTERPRISE VALUE FACTORS

The data from the interviews were analysed through three theory-driven dimensions (integration, optimisation, and information). The themes include the key areas discussed by the stakeholders for each phase as they were interviewed about the GRC implementation process. The GRC implementation process was commonly divided in four stages by all the interviewees (as it is also divided in the previous section).

The ideas discussed about the **integration** theme included mainly themes as the 'clear view for an integrated GRC system' as this was initially expressed by the GRC experts involved in implementation projects. This idea was also highlighted by the rest of the stakeholders, as well as other subjects. The 'strategic fit of the business processes with the IT systems' which was initially identified as a key area from the IT consultant was also pointed out by the rest of the stakeholders and mostly the project manager.

The top manager of GRC implementation projects gave also great importance at the **optimisation** dimension, where the key idea was expressed about the project chartering phase when the 'organisation searches for proactive ways in terms of user access, process automation and improving processes' as it was addressed in the interviews. The necessity of an 'optimised GRC system' with 'stable functionality' and 'updated versions' was noted also as crucial mostly at the later stages of the implementation process.

The third dimension discussed was about the **information** required for the implementation process. At this point, the GRC expert involved in implementation projects discussed more specifically the idea that 'the control framework exists already in the organisation before

the implementation', but the 'stakeholders seek for an integrated GRC technology for these controls'. The IT consultant referred to the importance of 'the information from the control framework' that needs to be 'plugged in the new technological solutions' when they implement the systems. In addition, regards the information required the common idea expressed was about the 'data about information risk, user provisioning and business process ownership' as these should be available by the IT basis team of the organisation. The table described before (Table 6.4) summarises the themes of the interviews conducted with the GRC implementation stakeholders.

6.4.2. THE USE OF THE ANALYSIS FRAMEWORK

The use of the analysis framework for the GRC implementation can provide further insight on how the GRC implementation process can be planned and processed through the decision-making activities of the organisations. The organisations should consider the aspects of the GRC systems and their implementation, understand how the implementation lifecycle of such a system can be developed and also identify if this system can add enterprise value to the organisation or enhance the already existing value of their systems.

The GRC implementation framework was developed for the analysis of the GRC implementation process; and includes the aspects, the lifecycle phases and the dimensions as these were presented in the previous chapters. The aspects of such an implementation, the lifecycle phases and the enterprise value drivers/ dimensions can provide a detailed analysis of the process, and can be used together for the holistic view and understanding of the process; and how this can be successful.

The analysis framework and more specifically the analysis results of this study can assist the business planning of the organisations in order to understand the requirements and the purpose of GRC tools. Additionally, it can provide a research tool for further analysis of the implementation process for GRC solutions, how this process can be improved; how the current practices are successful for the use of the GRC tools in different organisational environments.

6.5. CONCLUSION

The chapter analyses three enterprise value dimensions (integration, optimisation, and information). The three dimensions structure the reflective analysis of the GRC implementation process. Furthermore, these three dimensions combined with the GRC implementation aspects provide the basis of the GRC implementation consolidated analysis framework for the GRC implementation. The chapter initially presented the three value dimensions throughout the GRC implementation lifecycle, their reflective analysis and the summary of the 3rd investigation phase (both parts a and b). The chapter ends with a brief analysis based on the use of the framework, which combines of all the aspects coming from the data from the three investigation phases.

From a practical perspective, the framework and the analysis will help enterprises to develop and improve their GRC strategy for their competitive advantage and identify the critical success areas for their GRC implementation. From a theoretical perspective, it can contribute to the knowledge about GRC systems and their implementation within the enterprises. In addition, it addresses missing parts of the existing GRC frameworks by focusing on their implementation process. Further research in the area of the GRC implementation; can continue regarding the ways of improving and enhancing the enterprise performance; and how they can deliver the best results by identifying the benefits

CHAPTER 7:
CONCLUSION AND FURTHER RESEARCH DIRECTION

CHAPTER 7: CONCLUSION AND FURTHER RESEARCH DIRECTION

7.1. RESEARCH OVERVIEW

Chapter 1 introduced the research agenda while it provided an overview of the motivation for the research, the research questions and the contribution. The aim of this chapter was to highlight the importance of GRC systems and to identify the issues driving to the development of such integrated enterprise tools. From this technology, large organisations can benefit while they are investing in risk management and compliance with internal and external regulations. Furthermore, the GRC reports from financial consulting groups had shown a strong tendency to consult on implementing integrated GRC systems within the business environment in order to ensure that the risk and compliance disciplines are followed within the organisations. This is apparent as it is also discussed in relevant sections of this chapter. The challenges involved in the successful implementation process are also clear and acknowledged in this research. The literature showed the academic study of GRC is rather limited and requires greater contribution especially related to their implementation process.

The research recognises GRC systems as a fundamental business requirement and focuses on the need to gain enterprise value from the implementation projects. The research follows an analytical approach of the GRC implementation process from an enterprise systems perspective by indicating the aspects of GRC implementations, evaluating the implementation process of these GRC implementation programmes and the strategic benefits and examining the critical success factors of such technological solutions. The enterprise systems perspective of these GRC technologies can support the investigation of this newly developed business solution. Thus, an enterprise view of the organisational environment hosting such initiatives will help for the understanding of this complex and not adequately researched area. This chapter included an introductory part to the research described in the thesis. It also presented the motivation for researching this specific field

and some background information about the GRC systems and their birth. Moreover, the research questions were defined as well as the research objectives. In addition, the methodological approach followed throughout the research and the contribution of this research; were presented in brief. Additionally, an overview of the thesis was developed giving a context of the following six chapters.

Chapter 2 provided the background literature to this research. The background research review provided the existing literature for the aspects of GRC systems and their implementation. For the better understanding of the GRC, the enterprise system literature was also reviewed in order to provide general background about these integrated systems and to facilitate the move to GRC systems. Furthermore, the enterprise integration part provided information of how the aspect of integration works in these enterprise systems. The integration assisted also in understanding how the GRC systems can be used for the maximisation of the enterprise benefits, if the implementation process is successful. The literature is initially consisted of the enterprise system (ES) implementation references that can be used as a base to frame the GRC implementations and thus achieve enterprise value from them. Moving beyond, the review of the literature examined the ES project failure and critical success factors in order to provide a foundation for the GRC implementation. Some background information was provided to give an idea of how these systems can be implemented from whitepapers and consulting companies' suggestions. Additionally, an initial framework for the investigation of the GRC implementations was formed from the theoretical perspectives of enterprise system success.

Chapter 3 provided an analysis of the research methods used in this thesis to examine the GRC implementation process. The chapter discusses what should be considered before selecting the appropriate research approach. This chapter also describes the underlying research assumptions for the IS research and the rationale for the approach followed and how is this suitable for this specific research. Initially, the chapter presents the ontological and epistemological assumptions of the interpretative research methodology, which has been used as the basis of this research.. Qualitative research including the qualitative research process was also described and examined and its suitability for this research discussed in addition to the research design followed in this study. Qualitative research was selected and was discussed in detail and the field study approach was described as the main

methods for collecting and analysing data. The different methods for gathering data were also explained. The various methods of empirical data collection were discussed with particular focus on those used within this research. In addition, the method of data analysis selected was also examined. Finally, the selection of a thematic analysis approach for organising, coding and analysing data was presented.

Chapter 4 included a detailed description of the empirical context of this research. The two first phases of the data collection were described in this Chapter and later their results (aspects) were compared. Initially there is a presentation of the first phase of the data collection related to enterprise systems (ES) implementation aspects. This first phase served an empirical basis for this research as well as provided data for the discussion of the aspects of the ES and GRC implementation. The second phase of the data collection was described and resulted in an overview of the GRC implementation aspects as these were described in the empirical data of the second phase of the data collection. The chapter also included the assimilation between the implementation aspects of Enterprise systems and GRC systems.

Chapter 5 included the data collected at the third phase of the research. The chapter focused on the various interests and activities of the stakeholders throughout the GRC implementation lifecycle as well as an examination of the barriers and critical success factors associated with the GRC Implementation Experience, as these are stemming from the analysis results. This first part of the third investigation phase provided the basis for the second part of the third phase investigation. The GRC implementation analysis framework was developed from the results of this phase coupled with the enterprise systems theories; the framework provided a structure for the analysis of the GRC implementation process for the next chapter.

Chapter 6 involved the second part of the third investigation phase and presented the use of the analysis framework as it was developed in the previous chapter. Additionally, this chapter provided a discussion about the data and more specifically; on the GRC implementation process and how this can be successful. The enterprise value of the GRC implementation was examined with the analysis of the enterprise value drivers (integration, optimisation and information) throughout the whole GRC implementation lifecycle. This chapter provided at the end the consolidated analysis framework for the analysis of the GRC

implementation process, which can be used for further analysis in the future as well as it can provide a roadmap for the stakeholders when they consider implementing such systems in an organisation.

Chapter 7 is the summarising part of all the previous chapters, and the three investigation phases, as well as an overview of the research contribution regard the theoretical, methodological and practical use of it. The limitations of the research approach and further research directions will be presented at this chapter.

7.2. SUMMARY OF THE INVESTIGATION PHASES

The field investigation was designed in three phases, these three phases intended to examine the key aspects of the research. These key aspects can be referred as the enterprise systems implementation; and the use of the insights gathered in the case of GRC implementation. Initially, the aim was to identify the similarities, differences of these implementation processes, and reason the choice to follow a specific approach for the implementation of GRC systems. Once the similar and different aspects of the implementation process were identified, the further analysis of the GRC implementation process was facilitated. The analysis of the GRC implementation process provided a clear view of this process and assisted in the theoretical and practical contributions within the field that can be followed as a guide for the organisations and the people intending to implement such systems in the future.

The **first phase** included overview of the ES implementation literature as well as semi-structured interviews with ES implementation stakeholders, with experience in the field of the implementation of such systems. This phase provided background information in the field of ES implementation and supported the research with the data gathered from the interviews in the field of ES. The researcher could better define and understand the ES implementation process, and gain an initial theoretical background from the interviews and the literature review for the primary research of the GRC implementation field.

The **second phase** included the primary investigation phase of the GRC implementation with semi-structured stakeholder interviews in order to understand and investigate the whole

process as the interviewees experienced it. The outputs from this stage were used as the backbone of the whole research, as they provided the aspects of the GRC implementation process. The aspects of the GRC implementation process were used for examining the relativity of the ES and GRC implementation process, while defining similarities, differences and the reasoning for developing a more specific view of the GRC implementation process. The data gathered at the second investigation phase developed also the GRC implementation lifecycle, which was matched with the ES implementation lifecycle of Markus and Tanis (2000). The GRC implementation lifecycle provided a structure for the third investigation phase, in order to gather and analyse in detail the information about the GRC implementation process.

The **third phase** involved structured interviews, with the GRC implementation stakeholders, in order to confirm the findings and get in-depth insights about the GRC implementation process. The first part of the third phase comprised the analysis of the GRC implementation lifecycle phases; the key stakeholders involved and their concerns in each lifecycle phase. The analysis of the lifecycle phases provided output for the enterprise value drivers examined in the second part of the third phase. The background that was provided throughout the third investigation phase resulted in the development of 'the consolidated analysis framework of the GRC implementation process' as this came from the data gathered from all the three investigation phases.

The 'consolidated analysis framework for the GRC implementation' stemmed from different outputs developed in each investigation phase. The framework was enhanced throughout the results of the three investigation phases and all these individual elements produced through the phases can be considered as contributions to theory and practice of this research. The development of the framework through the three investigation phases was discussed in the previous Chapter (Chapter 6 -section 6.4) and the presentation of the contributions that came from the whole research will come at this chapter (Chapter 7 – section 7.3).

The consolidated framework enhances the initial framework that was developed from the ES theories as an initial roadmap. The framework supports the analysis of the GRC implementation process with the aspects, the lifecycle phases and the dimensions as these

were presented in the previous chapters. Figure 6.1 presents the consolidated analysis framework.

7.3. OUTPUT FROM EACH INVESTIGATION PHASE: THE BUILD-UP OF THE ANALYSIS BASED ON THE FRAMEWORK ELEMENTS

Each investigation phase was designed in order to facilitate the analysis of the GRC implementation process. This analysis was based upon the framework that came through the results of the three investigation phases. This framework aims to be used by the organisations that seek to implement a GRC solution and also the researchers of the GRC and enterprise systems field, in order to understand and improve the implementation process of such software. The framework initially was based on the enterprise systems literature and was enhanced throughout the investigation process for providing better insight specifically for the GRC implementation. The consolidated analysis framework is divided in three basic elements, which serve the analysis of the GRC implementation.

7.3.1. FIRST FIELD INVESTIGATION PHASE

The first investigation phase identified the aspects of the GRC implementation that should be further investigated in order to define the strategy that should be followed by the project team (Figure 7.1). These aspects were initially identified for the enterprise systems implementation in general, and were also used for the case of GRC implementation for exploring the specific GRC setting of the organisational environment where the system will be implemented.

Figure 7.1: Aspects for the GRC implementation analysis

7.3.2. SECOND FIELD INVESTIGATION PHASE

The second investigation phase explored in detail the aspects of the GRC implementation process and shaped the GRC implementation lifecycle that should be reviewed for the GRC systems. The GRC implementation lifecycle is comprised by four phases; these phases can shape the analysis of the implementation and give specific directions for each phase of the implementation lifecycle.
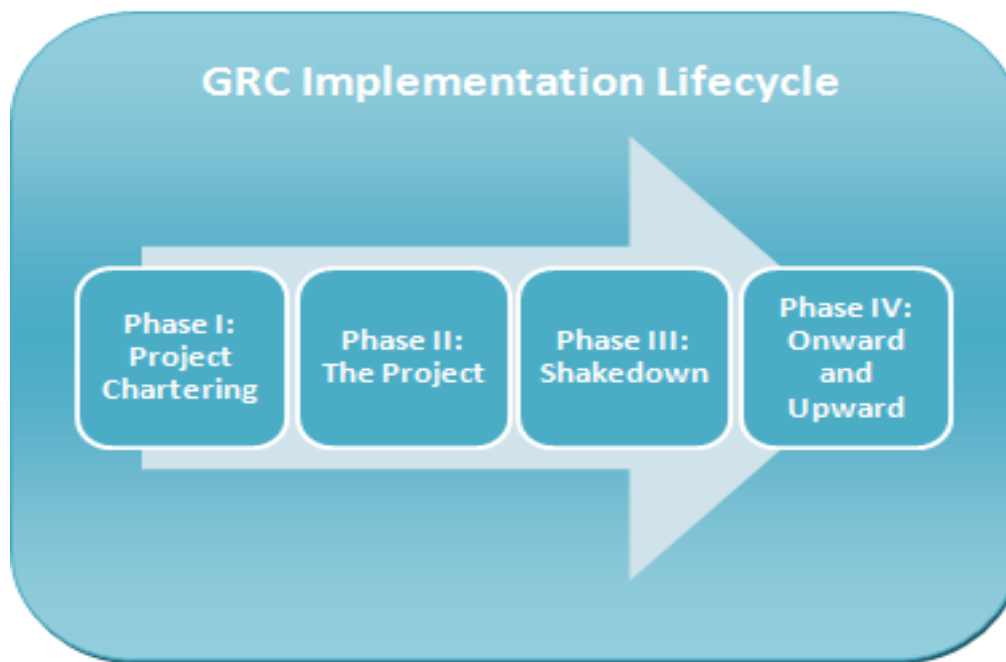
Figure 7.2: Experience lifecycle for the GRC implementation analysis

7.3.3. THIRD FIELD INVESTIGATION PHASE

The third investigation phase analysed the four GRC implementation lifecycle phases and provided the three drivers/dimensions that should be considered for gaining enterprise value through the system implementation. These three drivers/dimensions are the a) integration, b) optimisation and c) information. The detailed analysis of these three dimensions can assist the strategic plans for a successful GRC implementation. If these three dimensions are also analysed through each of the implementation lifecycle phases, they can produce a detailed description of the directions for an implementation that can add greater value to the GRC organisational landscape.
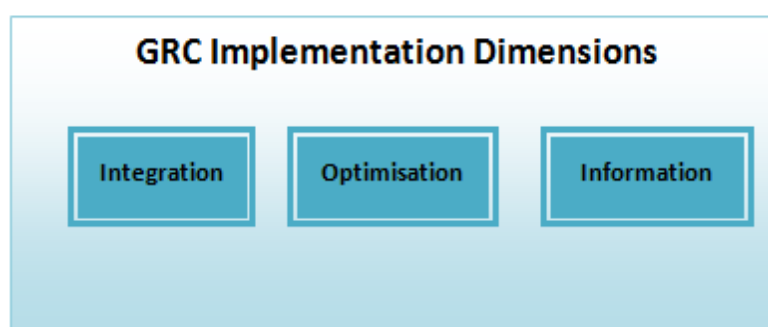

Figure 7.3: Enterprise value drivers for the GRC implementation analysis

7.4. CONTRIBUTIONS

The research was designed to meet out some objectives, as these were stated at Chapter 1. These objectives were achieved as follows.

➢ *Comprehensive literature review in the area of enterprise systems (ES) implementation with a particular focus on GRC systems and their implementation (Chapter 2)*

A literature review was conducted in the areas of enterprise systems (ES) implementation, as well as the GRC systems literature and their implementation. The literature review assisted the designing of the research and provided output for exploration throughout the phases of field study investigation.

➢ *Investigation of aspects associated with the enterprise systems (ES) Implementation experience, as well as those associated with the GRC Implementation experience (Chapter 4)*

The investigation of the aspects of both ES and GRC implementation provided a clear view for each implementation and assisted in understanding and defining the assimilation between these two

➢ *Assimilation between the enterprise systems (ES) implementation process and the GRC implementation process (Chapter 4)*

The assimilation between the enterprise systems (ES) implementation and the GRC implementation process, made clearer the need for a specified research approach for the GRC systems. The GRC systems can follow a general ES approach for their implementation; however, they should follow also some specifics related to the GRC aspects.

➢ *Identification of the phases of the GRC implementation lifecycle and the various interests and activities of the stakeholders involved in each of these phases (Chapter 5)*

The identification of the various interests and activities of the stakeholders involved in the GRC implementation, throughout the whole implementation experience lifecycle provided an insight about the implementation and gave aspects in each implementation phase in more detail.

➢   *Examination of the enterprise value factors achieved throughout the GRC implementation experience (Chapter 6)*

The examination of the enterprise value factors throughout the GRC implementation lifecycle provided an analysis about the value that could be achieved by these systems if they are implemented successfully following the ES Success dimensions of integration, optimisation and information.

➢   *Reflective discussion about the GRC implementation process aspects, lifecycle and enterprise value factors (Chapter 6)*

The discussion about the GRC implementation supported the initial decision to follow a specified approach for the GRC systems although the use of general ES implementation approaches seems crucial as well for the success of such implementation projects.

The accomplishment of the above objectives was achieved after the synthesis of enterprise systems (ES) implementation lifecycle coupled with the enterprise value drivers. This combination assisted in developing a framework for the analysis related to the implementation of the GRC systems. The limitations included mostly the gap in the literature, related to the GRC implementation where only a few academic studies had examined this area. Therefore, the contribution of this research covers both the theory and practice of the GRC implementation process. The contribution of this work stems from different components in this thesis.

From the contextual information provided in chapters 1 and 2 to the research methodology reported in chapter 3 through the design and the description of the field investigation reported in chapters 4 and 5 and finally the empirical analysis of the field investigation and the revision of the framework presented in chapters 6 and 7. The next sections will present in detail the theoretical, methodological and practical contributions.

The generalisation of particular studies is an important issue related to the contribution of any research and also how they can be proved to be useful in other research contexts. The importance of the usability for future researchers is another issue to be addressed, as the conclusions of a particular research when studying a similar subject in a different geographical, political or social setting. For this research it is interesting to examine the relevance of its conclusions to other financial controlling and risk systems rather than GRC or examine it in specific geographical areas.

Following the principles of Walsham (1995) for generalisation from interpretive case studies, this research can claim to offer generalisation to theory, as it has developed a theoretical framework that can guide future studies in the same research areas. More specifically, the theoretical framework developed in this study can be used as a guide for the analysis for other financial controlling and risk management tools such as GRC applications for cloud computing, or other business analytics tools. These enterprise systems in the same area as the GRC systems have been introduced to the business community rapidly before potential users were adequately familiarised with them. Thus, the successful implementation of such enterprise tools can provide a more experienced and professional view of the controlling principles within the organisational environment and can benefit from the current study's contribution to the area of GRC implementation process.

In this thesis there are no specific details about the content of the training material used in the GRC implementation process. Thus the developed framework can be used to identify relevant stakeholders and their activities and interests throughout the implementation process. Additionally, although the stakeholder groups and their ideas might be different from those identified for GRC in this research the conclusions made here can offer a basis for a better understanding and further examination of the risk management and financial controlling tools. The latter relates to the type of generalisation refer by Walsham (1995) as "drawing of specific implications" and implies the provision of tendencies which may prove a useful insights for related work in other contexts.

Additionally, the results of this research can prove useful for researchers studying or stakeholders involved in the GRC implementation process in different geographical settings and within different regulatory environments. It was discussed in this thesis that the

controlling frameworks that exists already in the organisation prior to the GRC implementation process, can be proved as crucial as they can give directions and a controlling structure as a basis for the implementation strategy. Thus, if these controlling frameworks do not already exist in the organisational environment, the stakeholders can face a serious barrier to the implementation, as these GRC tools are already setting a very strict environment and the organisation has to be used in a level of strict policies for the transactions and the systems.

The results of this research could be of great interest to stakeholders thinking to implement a GRC system within an organisation, in order to evaluate if this system is suitable for their organisation and to define how the implementation strategy will be developed for their unique financial controlling and risk management setting.

In the next sections the contribution of this thesis will be presented in detail regarding the theoretical, methodological and practical contributions.

7.4.1. CONTRIBUTION TO THEORY

The theoretical and one of the most important contributions of this research stems from the limitations that were identified in the current research on the GRC implementation process (Spanaki and Papazafeiropoulou, 2013). These relate to the study of the GRC system implementation using enterprise systems (ES) approach. By introducing and developing the enterprise systems approach for the case of GRC implementation this thesis made theoretical contributions for two research domains, the enterprise systems implementation and the GRC implementation theories.

In the case of enterprise systems (ES) *theory* this research offered the introduction of the GRC systems as an integrated financial controlling and risk management tool built to assist the enterprise systems controlling and risk management environment which should be compliant with the international and local regulatory standards. The GRC practices already existed in the organisations for a long period of years, however the integrated software tools built to assist GRC principles are newly developed and therefore they should be considered within the family of the enterprise systems, as they can follow also the enterprise systems theories especially for integrated enterprise applications. The enterprise

systems implementation lifecycle and the enterprise value drivers were initially were used in a generalised approach to analyse the implementation process of GRC systems. Once some insight of the GRC implementation was developed the research followed a more specific approach for the GRC tools and focused on defining the specifics of this implementation.

Another aspect of the GRC implementation process that has been neglected in the literature and became obvious during this research is the fact that the implementation of such strict controlling software requires a prior controlling framework within the organisation in order the implementation of these systems to be successful. GRC practices should exist in advance in a manual way either by using some risk management and auditing tools within the enterprise or by outsourcing the controls to IT GRC consulting companies.

Another contribution of this research in the GRC systems was related with their implementation process. The drawback has been identified from previous research in the field; while considering the GRC systems as a business requirement, the implementation process of these systems was not investigated in detail yet (Gericke *et al.*, 2009).

Contribution to GRC implementation theory is mainly related with the use of enterprise systems implementation theories to approach this specific implementation. Previous research has shown that the theory can be applied to GRC systems implementation with situational method or by understanding the controlling frameworks used. Previous research in the field was not analysing the implementation as a whole process and its specifics were not identified for each implementation phase.

The combination of the enterprise system experience lifecycle (Markus and Tanis, 2000) with the enterprise value drivers (Davenport et al, 2004) assisted in building the analysis framework for the GRC implementation process and supported the investigation of the aspects, the stakeholders and their interests for the implementation of such solutions

7.4.2. CONTRIBUTION TO METHODOLOGY

The main methodological contribution of this research has been the use of the field study strategy in the area of GRC systems, where experienced stakeholders in the field of implementation were interviewed for the data collection process. The GRC area was

explored in the past through case study approach or through contextual-archival studies of reports and organisational reviews. Additionally, the GRC systems and also ES systems implementation research used in most studies quantitative methods or case study approaches.

The most of the studies that have examined the area of the GRC systems have focused on a specified country or a specific organisational setting for the system. However, this study has considered the implementation stakeholder categories and focused on their different groups and their experience in the implementation process of such systems. Field studies tend to focus on a particular context or organisation but this study has applied the approach to a multi-organisational context through the experience of the stakeholders in various GRC implementation projects.

The use of ES implementation literature and GRC whitepapers and reports also avoided the use of grounded theory that could also be employed in this study. If the questions were not present in the interviews (semi-structured and structured interviews were conducted), as well as the fact that there is extensive literature about ES implementations (that was the first phase of the interviews), the grounded theory approach could be applicable at this study. For the previous reasons the grounded theory approach was not employed, however it could be considered in a different setting.

Another contribution to methodology is the combination of thematic analysis with interpretative stance for analysing the empirical material gathered from the field studies.

7.4.3. CONTRIBUTION TO PRACTICE

The contribution of this research was also through a detailed understanding of the views of the GRC implementation experience and the enterprise value that can be gained if this implementation is successful. The identification of the aspects, the implementation lifecycle and the enterprise value factors for the GRC implementation provided insight about the whole implementation process in an organisational environment. These outputs combined with the use of the consolidated analysis framework that came through the field investigation, can provide tools for the further enrichment of the area of the GRC

implementations. They can also provide a roadmap for the decision-making process before the GRC implementation.

This research has contributed to practice by providing a rich insight into the GRC implementation process. This is particularly evident in the way that the experience of each of the stakeholders involved in GRC implementation projects. An analysis of the views of each of these stakeholders exposed areas for further attention and were developed in the third field investigation phase (chapters 5 and 6). The enterprises can also benefit from better GRC implementation decisions by also identifying critical areas within the implementation lifecycle.

This can result in the enterprises in particular, becoming aware of certain aspects of the system; and how these can influence the implementation success. Additionally, the organisations can benefit from an integrated GRC environment where the controlling and risk management principles are followed in an automatic way. The organisational environment can be enhanced, as the stakeholders can examine their interests about the system and the controlling and auditing practices they are following. They can also understand their own needs and learn the system inside the organisation in order not to depend on external outsourcing GRC consultancies which can facilitate greater risk for the GRC environment.

From the results of this research, some of the GRC vendors can benefit, as they can identify the GRC implementation process and enhance their current systems to more updated versions that can avoid some problems especially throughout the implementation process. These systems were identified as very complex and strict, it is one of the main basic principles of GRC to follow such a strict environment; however the vendors can consider these facts that complicate the implementation in and design or improve the versions to be easier to implement and use.

The government could also benefit from this research by recognizing the effects of some of their regulation to the GRC environment. Therefore, the government should have insight of how the organisations are implementing these tools and if they assist the GRC principles for specific geographical and organisational settings.

Additionally, the professionals working in the GRC sectors and the GRC implementation teams can benefit by employing an enterprise systems perspective when they are implementing GRC systems. it can provide a roadmap for structuring the project plan and defining the time-schedule and the guidelines for the implementation. Finally, researchers can use this research as a basis when investigating GRC related topics and with more emphasis on the implementation aspect of these systems.

7.5. LIMITATIONS OF THE RESEARCH APPROACH

The interpretive research stance is employed for this research. The subjective interpretation of the phenomena might influence the findings. This drawback has been acknowledged and addressed in this research by using various resources and eliciting experience of different stakeholder categories. Furthermore, when eliciting the experience of the stakeholders, in-depth interviews were employed. This allowed the experience of the stakeholders in GRC implementation to unfold as they experienced it and not as the researcher experienced it (Marshall and Rossman, 1999).

Another limitation is the fact that the collection of empirical material will depend greatly on the level of access that the researcher is allowed to have. The implementation stakeholders could either prove difficult to access or decide to hide vital information from the researcher. An example of this was the failure of reaching more stakeholders from each stakeholder category in this research. In order to solve this issue, the three investigation phases were also aided of secondary data as project reports, archival observation and annual reviews of previous GRC implementation projects which proved sufficient for the analysis of the GRC implementation process.

Finally, the field study focussed on the experience of GRC implementation stakeholders in projects conducted worldwide and not in a specific geographical or regulatory setting. The experience of GRC software vendors could provide a different output for the GRC implementation process; however this perspective was not examined in this specific study.

7.6. AREAS OF FURTHER RESEARCH

This research has contributed to a deep understanding of the experience of the GRC implementation stakeholders. The experience of these stakeholders was analysed and further research areas were identified. One of such areas is the identification of the GRC aspects, the implementation lifecycle for GRC and the four phases it follows and the enterprise value drivers for the GRC implementation. In the field investigation of this research, the interviewees highlighted the importance of identifying the existing controlling frameworks prior to the GRC implementation

These frameworks can be further investigated in order to provide further insight into the GRC implementation process, as they provide necessary information that is required in order to plug-in these solutions in each specific organisational environment. In addition, a strong implementation project team should be formed with an experienced project leader in order to foster the GRC principles within the organisation and assure sponsorship and support from all the project teams. These project management areas of the GRC implementation could be further investigated and identified.

The experience of the GRC implementation in different regulatory and geographical settings could be further explored, as this research is following the experience of GRC stakeholders implementing GRC in different countries and regulatory environments in a worldwide setting.

APPENDIX

APPENDIX A: ES IMPLEMENTATION FIELD INVESTIGATION QUESTIONS (PHASE 1)

INTERVIEW DETAILS

1. Date of interview

2. Interviewee

3. Position

4. Organisation

5. Role in the implementation process

GENERAL DETAILS FOR THE INTERVIEWEE

1. What is your name?

2. What best describes your role within the company?

3. How this position does relate to ES implementation?

4. What are your areas of expertise?

5. How many years or experience do you have in this field?

ES RELATED QUESTIONS

1. Which are the organisational goals and objectives leading enterprises to an ES Implementation?

2. Who are the key stakeholders involved in an ES implementation and what are their roles?

3. Do the stakeholders share a common understanding of the principal strategic, operational, financial processes within an organisation?

4. What methodologies did enterprises follow for their business processes before they decide to implement an ES solution?

5. What are the requirements prior the ES implementation from an organisational and technical perspective?

6. What are the critical issues affecting an ES implementation? (critical success factors)

7. What are the main problems/ triggers throughout an ES implementation?

8. What do you believe is the main cause of these problems?

9. Do you think these problems can be avoided or solved, and how?

10. What do you believe are the emerging areas of improvement in the current ES solution?

APPENDIX B: GRC IMPLEMENTATION FIELD INVESTIGATION QUESTIONS (PHASE 2)

INTERVIEW DETAILS

1. Date of interview
2. Interviewee
3. Position
4. Organisation
5. Role in the implementation process

GENERAL DETAILS FOR THE INTERVIEWEE

1. What is your name?

2. What best describes your role within the company?

3. How this position does relate to GRC implementation?

4. What are your areas of expertise?

5. How many years or experience do you have in this field?

GRC RELATED QUESTIONS

1. Which are the organisational goals and objectives leading enterprises to an automated Governance, Risk and Compliance (GRC) implementation?

2. Who are the key stakeholders involved in a GRC implementation and what are their roles?

3. Do the stakeholders share a common understanding of the principal strategic, operational, financial and regulatory risks within an organisation?

4. What methodologies did enterprises follow for Governance, Risk and Compliance (GRC) management before they decide to implement an automated GRC solution?

5. What are the requirements prior the GRC implementation from an organisational and technical perspective?

6. What are the critical issues affecting a GRC implementation? (critical success factors)

7. What are the main problems/ triggers throughout a GRC implementation?

8. What do you believe is the main cause of these problems?

9. Do you think these problems can be avoided or solved, and how?

10. What do you believe are the emerging areas of improvement in the current automated GRC solution?

APPENDIX C: GRC IMPLEMENTATION FURTHER FIELD INVESTIGATION QUESTIONS (PHASE 3)

PART A DISCUSSION TOPICS

7. General discussion about the GRC lifecycle

8. Discussion about the lifecycle phases of the GRC implementation

9. Specific discussion about each phase

    a) Chartering Phase (key stakeholders, key concerns and interests)

    b) The Project Phase (key stakeholders, key concerns and interests)

    c) The Shakedown Phase (key stakeholders, key concerns and interests)

    d) The Onward and Upward Phase (key stakeholders, key concerns and interests)

PART B DISCUSSION TOPICS

1. General discussion about the enterprise value of the GRC implementation process

2. The enterprise value factors throughout the GRC experience lifecycle

    a) The integration dimension throughout the GRC experience lifecycle

    b) The optimisation dimension throughout the GRC experience lifecycle

    c) The information dimension throughout the GRC experience lifecycle

APPENDIX D: CONSENT FORM AND STATEMENT OF ETHICS APPROVAL

Brunel
UNIVERSITY
L O N D O N

CONSENT FORM
An Enterprise Systems Perspective to GRC IS Implementation Process

	YES	NO
The participant should complete the whole of this sheet him/herself		
Please tick the appropriate box		
Have you read the Research Participant Information Sheet?	☐	☐
Have you had an opportunity to ask questions and discuss this study?	☐	☐
Have you received satisfactory answers to all your questions?	☐	☐
Who have you spoken to?		
Do you understand that you will not be referred to by name in any report concerning the study?	☐	☐
Do you understand that you are free to withdraw from the study:		
• at any time	☐	☐
• without having to give a reason for withdrawing?	☐	☐
• do you wish your details to be kept anonymous?	☐	☐
I agree to my interview being recorded.	☐	☐
I agree to the use of non-attributable direct quotes when the study is written up or published.	☐	☐
Do you agree to take part in this study?	☐	☐

Signature of Research Participant:

Name in capitals: Date:

School of Information Systems, Computing and Mathematics
David Gilbert, Head of School, Professor of Computing
Jasna Kuljis, Head of Information Systems and Computing, Professor of Computing
Tony Rawlins, Head of Mathematical Science, Professor of Mathematics

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Date: 5th March 2012

STATEMENT OF ETHICS APPROVAL

Proposer: Konstantina Spanaki

Title: Examining the enterprise value throughout GRC implementation projects.

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,

Professor Zidong Wang

Chair of the Research Ethics Committee

SISCM

REFERENCES

REFERENCES

Aberdeen Group (2008) *GRC Strategic Agenda: The Value Proposition of Governance, Risk and Compliance*, Aberdeen Group.

Adler, P.A. and Adler, P. (1994) "Observational techniques", *Handbook of qualitative research,* N. DY Lincoln.

Aladwani, A.M. (2001) "Change management strategies for successful ERP implementation", *Business Process management journal,* vol. 7, no. 3, pp. 266-275.

Al-Mashari, M. (2002) "Enterprise resource planning (ERP) systems: a research agenda", *Industrial Management & Data Systems,* vol. 102, no. 3, pp. 165-170.

Al-Mashari, M., Al-Mudimigh, A. and Zairi, M. (2003) "Enterprise resource planning: A taxonomy of critical factors", *European Journal of Operational Research,* vol. 146, no. 2, pp. 352-364.

Alvesson, M. and Willmott, H. (1992) "On the idea of emancipation in management and organization studies", *Academy of Management Review,* vol. 17, no. 3, pp. 432-464.

Amoako-Gyampah, K. and Salam, A.F. (2004) "An extension of the technology acceptance model in an ERP implementation environment", *Information and Management,* vol. 41, no. 6, pp. 731-745.

Asprion, P.M. and Knolmayer, G.F. (2013) "Assimilation of Compliance Software in Highly Regulated Industries: An Empirical Multitheoretical Investigation", *System Sciences (HICSS), 2013 46th Hawaii International Conference*, pp. 4405.

Bancroft, N., Seip, H. and Sprengel, A. (1998) *Implementing SAP R/3: How to Introduce a Large System into a Large Organization,* Manning Publication Co., Greenwich, CT.

Baskerville, R., Pawlowski, S. and McLean, E. (2000) "Enterprise resource planning and organizational knowledge: patterns of convergence and divergence", *Proceedings of the twenty first international conference on Information systems,* Association for Information Systems, , pp. 396.

Basoglu, N., Daim, T. and Kerimoglu, O. (2007) "Organizational adoption of enterprise resource planning systems: A conceptual framework", *Journal of High Technology Management Research,* vol. 18, no. 1, pp. 73-97.

Benbasat, I., Goldstein, D.K. and Mead, M. (1987) "The case research strategy in studies of information systems", *MIS Q.,* vol. 11, no. 3, pp. 369-386.

Bhattacharya, P.J. and Seddon, P.B. (2011) "Going Beyond Operations with Enterprise Systems", *ACIS 2011 Proceedings.* Paper 51.

Bhattacharya, P.J., Seddon, P.B. and Scheepers, R. (2012) "Enterprise systems for innovation in products and processes: beyond operational efficiency", *ACIS 2012: Location, location, location: Proceedings of the 23rd Australasian Conference on Information Systems 2012* ACIS, , pp. 1.

Bingi, P., Sharma, M.K. and Godla, J.K. (1999) "Critical issues affecting an ERP implementation", *Information Systems Management,* vol. 16, no. 3, pp. 7-14.

Bititci, U.S., Turner, T. and Begemann, C. (2000) "Dynamics of performance measurement systems", *International Journal of Operations & Production Management,* vol. 20, no. 6, pp. 692-704.

Boeije, H.R. (2009) *Analysis in qualitative research,* Sage.

Booth, P., Matolcsy, Z. and Wieder, B. (2000) "Integrated information systems (ERPsystems) and accounting practise - the Australian experience", *Paper presented at the 3rd European Conference on Accounting Information Systems, Munich, Germany, March 27-28, 2000,* .

Botta-Genoulaz, V. and Millet, P.-. (2006) "An investigation into the use of ERP systems in the service sector", *International Journal of Production Economics,* vol. 99, no. 1-2, pp. 202-221.

Boyatzis, R.E. (1998) *Transforming qualitative information: Thematic analysis and code development.* Sage Publications, Inc., Thousand Oaks, CA, US.

Bradford, M. and Florin, J. (2003) "Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems", *International Journal of Accounting Information Systems,* vol. 4, no. 3, pp. 205-225.

Bradley, J. (2008) "Management based critical success factors in the implementation of enterprise resource planning systems", *International Journal of Accounting Information Systems,* vol. 9, no. 3, pp. 175-200.

Braun, V. and Clarke, V. (2006) "Using thematic analysis in psychology", *Qualitative Research in Psychology,* vol. 3, no. 2, pp. 77-101.

Broady, D.V. and Roland, H.A. (2008) *SAP GRC For Dummies,* Wiley, Hoboken, NJ.

Buckhout, S., Frey, E. and Nemec Jr., J. (1999) "Making ERP succeed: turning fear into promise", *IEEE Engineering Management Review,* vol. 27, no. 3, pp. 116-123.

Burgess, R.G. (2004) *Field research: A sourcebook and field manual,* Psychology Press.

Caldwell, F. and Proctor, P.E. (2009) *Continuous Controls Monitoring for Transactions: The Next Frontier for GRC Automation*, Gartner Research.

Cangemi, M.P. (2008) "The Controls Challenge", *Bank Accounting & Finance,* vol. 21, no. 5, pp. 43-52.

Caston, M. (2008) *How to achieve a successful GRC Implementation*, December edn, eWeek mobile.

Chen, D., Doumeingts, G. and Vernadat, F. (2008) "Architectures for enterprise integration and interoperability: Past, present and future", *Comput.Ind.,* vol. 59, no. 7, pp. 647-659.

Chua, W.F. (1986) "Radical Developments in Accounting Thought", *The Accounting Review,* vol. 61, no. 4, pp. 601-632.

Chung, S. and Snyder, C. (1999) "ERP Initiation - A historical perspective", *Proceedings of AMCIS,* paper 76

Colman, R. (2006) "Sarbanes–Oxley in review", *CMA Management, ,* pp. 20-25.

Cooke, D.P. and Peterson, W.J. (1998) *Sap Implementation: Strategies and Results,* Conference Board.

Coolican, H. (2009) *Research methods and statistics in psychology,* Routledge.

Cooper, R.B. and Zmud, R.W. (1990) "Information technology implementation research: a technological diffusion approach", *Management science,* vol. 36, no. 2, pp. 123-139.

Coyne, I.T. (1997) "Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries?", *Journal of advanced nursing,* vol. 26, no. 3, pp. 623-630.

Damianides, M. (2004) "How does SOX change IT?", *Journal of Corporate Accounting & Finance,* vol. 15, no. 6, pp. 35-41.

Davenport, T.H. (2000) *Mission critical : realizing the promise of enterprise systems,* Harvard Business School Press, Boston, MA.

Davenport, T.H. (1998) "Putting the enterprise into the enterprise system", *Harvard Bus.Rev.,* vol. 76, no. 4, pp. 121-131.

Davenport, T.H., Harris, J.G. and Cantrell, S. (2004) "Enterprise systems and ongoing process change", *Business Process Management Journal,* vol. 10, no. 1, pp. 16-26.

Davenport, T.H., Harris, J.G. and Cantrell, S. (2002) *The return of Enterprise Solutions: The Director's cut*, Accenture, Wellesley, MA.

Deloitte Consulting (1998) *ERP's Second Wave – Maximizing the value of ERP-Enabled Processes*, Deloitte Consulting, New York.

DeLone, W.H. (2003) "The DeLone and McLean model of information systems success: a ten-year update", *Journal of Management Information Systems,* vol. 19, no. 4, pp. 9-30.

DeLone, W.H. and McLean, E.R. (1992) "Information systems success: the quest for the dependent variable", *Information systems research,* vol. 3, no. 1, pp. 60-95.

Denzin, N.K. and Lincoln, Y.S. (eds) (2000) *Handbook of Qualitative Research*, 2nd edn, Sage, Thousand Oaks, CA.

Dittmar, L. (2007) "Demystifying GRC", *Business Trends Quarterly,* vol. 2, no. 4, pp. 16-18.

Dittmar, L. (2006) "Governance and Compliance: Driving IT Priorities", *Financial Executive,* vol. 22, no. 1, pp. 48-51.

Dunn, C.L. and Gerard, G.J. (2001) "Auditor efficiency and effectiveness with diagrammatic and linguistic conceptual model representations", *International Journal of Accounting Information Systems,* vol. 2, no. 4, pp. 223-248.

Edwards, J. (2009) "A Defining Moment", *CFO Magazine,* [Online], . Available from: http://www.cfo.com/article.cfm/12835338/c_12922796. [25 November 2012].

EN/ISO I9439 (2003) "Enterprise Integration—Framework for Enterprise Modelling"

EPICOR (2008) *Achieving Efficient Governance, Risk and Compliance (GRC) Through Process and Automation*, Epicor Software Corporation.

Espinosa, J.A., Boh, W.F. and DeLone, W. (2011) "The organizational impact of enterprise architecture: a research framework", *System Sciences (HICSS), 2011 44th Hawaii International Conference on*IEEE, , pp. 1.

Fisher, J. (2007) *Compliance in the Performance Management Context. What technologies could simplify compliance and automate information gathering*.

Frigo, M.L. and Anderson, R.J. (2009) "A Strategic Framework for Governance, Risk, and Compliance", *Institute of Management Accountants.,* .

Galliers, R.D. (1991) "Choosing appropriate information systems research approaches: A revised taxonomy", *Information Systems Research: Contemporary Approaches and Emergent Traditions,* , pp. 327-346.

Gartner Group (1998) *1998 ERP and FMIS Study – Executive Summary. *, Gartner Group, Stamford, CT.

Geerts, G.L. and McCarthy, W.E. (2002) "An ontological analysis of the economic primitives of the extended-REA enterprise information architecture", *International Journal of Accounting Information Systems,* vol. 3, no. 1, pp. 1-16.

Gericke, A., Fill, H., Karagiannis, D. and Winter, R. (2009) *Situational method engineering for governance, risk and compliance information systems*, ACM, Philadelphia, Pennsylvania.

Gill, S. and Purushottam, U. (2008) "Integrated GRC–Is your Organization Ready to Move?", *GRC Worries? Why, when IT can Help?,* vol. 6, no. 3, pp. 37-46.

Griffith, T.L., Zammuto, R.F. and Aiman-Smith, L. (1999) "Why new technologies fail?", *Industrial Management,* vol. 41, no. 3, pp. 29-34.

Gumaer, R. (1996) "Beyond ERP and MRP II", *IIE Solutions,* vol. 28, no. 9, pp. 32-35.

Hayden, L. (2009) "Designing common control frameworks: A model for evaluating information technology governance, risk, and compliance control rationalization strategies", *Information Security Journal: A Global Perspective,* vol. 18, no. 6, pp. 297-305.

Helo, P., Anussornnitisarn, P. and Phusavat, K. (2008) "Expectation and reality in ERP implementation: consultant and solution provider perspective", *Industrial Management & Data Systems,* vol. 108, no. 8, pp. 1045-1059.

Henderson, J.C. and Venkatraman, N. (1993) "Strategic alignment: leveraging information technology for transforming organizations", *IBM Syst.J.,* vol. 32, no. 1, pp. 4-16.

Hirschheim, R. and Klein, H.K. (1994) "Realizing emancipatory principles in information systems development: The case for ETHICS", *MIS Quarterly: Management Information Systems,* vol. 18, no. 1, pp. 83-105.

Holland, C., Light, B. and Kawalek, P. (1999) "Beyond enterprise resource planning projects: innovative strategies for competitive advantage.", *7th European Conference on Strategies for Competitive Advantage – ECIS'99*Copenhagen Business School, Copenhagen, pp. 288.

Holland, C.P. and Light, B. (1999) "Critical success factors model for ERP implementation", *IEEE Software,* vol. 16, no. 3, pp. 30-36.

Hong, K.-. and Kim, Y.-. (2002) "The critical success factors for ERP implementation: An organizational fit perspective", *Information and Management,* vol. 40, no. 1, pp. 25-40.

Hunt, R. and Jackson, M. (2010) "An introduction to Continuous Controls Monitoring", *Computer Fraud & Security,* vol. 2010, no. 6, pp. 16-19.

Irani, Z. and Love, P.E.D. (2000) "The Propagation of Technology Management Taxonomies for Evaluating Investments in Information Systems", *J.Manage.Inf.Syst.,* vol. 17, no. 3, pp. 161-177.

Janesick, V.J. (2000) "The choreography of qualitative research design: Minuets, improvisations, and crystallization", *Handbook of Qualitative Research, ,* pp. 379-399.

Kanellou, A. and Spathis, C. (2011) "Auditing in enterprise system environment: a synthesis", *Journal of Enterprise Information Management,* vol. 24, no. 6, pp. 494-519.

Kaplan, B. and Maxwell, J.A. (1994) "Qualitative research methods for evaluating computer information systems." in *Evaluating Health Care Information Systems: Methods and Applications*, ed. S.J. Jay, Sage, Thousan Oaks, CA, pp. 45-68.

Kelly, S. (2009) "The ABCs of GRC", *Treasury and Risk Magazine,* [Online], . Available from: http://www.treasuryandrisk.com/2009/06/01/the-abcs-of-grc. [25 November 2012].

Klein, H.K. and Myers, M.D. (1999) "A set of principles for conducting and evaluating interpretive field studies in information systems", *MIS Quarterly: Management Information Systems,* vol. 23, no. 1, pp. 67-94.

KPMG (2009) *Continuous auditing/ Continuous monitoring: Using technology to drive value by managing risk and improving performance*, KPMG, Australia.

Kuhn Jr, J.R. and Sutton, S.G. (2010) "Continuous auditing in ERP system environments: The current state and future directions", *Journal of Information Systems,* vol. 24, no. 1, pp. 91-112.

Kumar, V., Pollanen, R. and Maheshwari, B. (2008) "Challenges in enhancing enterprise resource planning systems for compliance with Sarbanes-Oxley Act and analogous Canadian legislation", *Management Research News,* vol. 31, no. 10, pp. 758-773.

Kumar, V., Maheshwari, B. and Kumar, U. (2003) "An investigation of critical management issues in ERP implementation: Emperical evidence from Canadian organizations", *Technovation,* vol. 23, no. 10, pp. 793-807.

Land, F. (1992) "The information systems domain", *Information Systems Research: Issues, Methods and Practical Guidelines,* , pp. 6-13.

Lankhorst, M.M. (2004) "Enterprise architecture modelling-the issue of integration", *Adv.Eng.Inform.,* vol. 18, no. 4, pp. 205-216.

Lazarides, T. (2007) "Comply! Resistance is futile", *Information Management & Computer Security,* vol. 15, no. 5, pp. 339-349.

Lee, Z. and Lee, J. (2000) "An ERP implementation case study from a knowledge transfer perspective", *Journal of Information Technology,* vol. 15, no. 4, pp. 281-288.

Loizos, C. (1998) "ERP: Is it the ultimate software solution", *Industry Week,* vol. 7, pp. 33.

Markus, M.L. (1997) *The qualitative difference in information systems research and practice*, Chapman & Hall, Ltd., Philadelphia, Pennsylvania, United States.

Markus, M.L. and Robey, D. (1988) "Information Technology and Organizational Change: Causal Structure in Theory and Research", *Management Science,* vol. 34, no. 5, pp. 583-598.

Markus, M.L. and Tanis, C. (2000) "The enterprise systems experience - from adoption to success" in *Framing the Domains of IT Management: Projecting the Future Through the Past*, ed. R.W. Zmud, 1st edn, Pinnaflex Educational Resources, , pp. 173-207.

Marshall, C. and Rossman, G.B. (1999) *Designing qualitative research.* Sage Publications.

Maurizio, A., Girolami, L. and Jones, P. (2007) "EAI and SOA: factors and methods influencing the integration of multiple ERP systems (in an SAP environment) to comply with the Sarbanes-Oxley Act", *Journal of Enterprise Information Management,* vol. 20, no. 1, pp. 14-31.

McNurlin, B.C. and Sprague, R.H. (1989) *Information Systems Management in Practice, .*

Menzies, C. (2006) *Sarbanes-Oxley und Corporate Compliance - Nachhaltigkeit, Optimierung, Integration.* Schäffer-Poeschel, Stuttgart.

Miles, M.B. and Huberman, A.M. (1994) *Qualitative data analysis: an expanded sourcebook,* 2nd edn, Sage, Thousand Oaks ; London.

Mitchell, S.L. (2007) "GRC360: A framework to help organisations drive principled performance", *International Journal of Disclosure and Governance,* vol. 4, no. 4, pp. 279-296.

Nicolaou, A.I. and Bhattacharya, S. (2006) "Organizational performance effects of ERP systems usage: The impact of post-implementation changes", *International Journal of Accounting Information Systems,* vol. 7, no. 1, pp. 18-35.

Niemi, E. and Pekkola, S. (2009) "Adapting the DeLone and McLean Model for the Enterprise Architecture Benefit Realization Process", *System Sciences, 2009. HICSS '09. 42nd Hawaii International Conference on*, pp. 1.

Nissen, V. and Marekfia, W. (2013) "Towards a Research Agenda for Strategic Governance, Risk and Compliance (GRC) Management", *Business Informatics (CBI), 2013 IEEE 15th Conference on*IEEE, , pp. 1.

OCEG (2007) "The 2007 GRC Strategy Study", *Key findings report,* [Online], . Available from: http://www.oceg.org/view/20056. [25 November 2012].

Orlikowski, W.J. and Baroudi, J.J. (1991) "Studying information technology in organizations: Research approaches and assumptions", *Information Systems Research,* vol. 2, pp. 1-28.

Ortiz, A., Lario, F. and Ros, L. (1999) "Enterprise integration - business processes integrated management: a proposal for a methodology to develop enterprise integration programs", *Comput.Ind.,* vol. 40, no. 2-3, pp. 155-171.

Parr, A. and Shanks, G. (2000) "A model of ERP project implementation", *Journal of Information Technology,* vol. 15, no. 4, pp. 289-303.

Patton, M.Q. (2002) "Designing qualitative studies", *Qualitative research and evaluation methods,* vol. 3, pp. 230-246.

Patton, M.Q. (1991) "Towards utility in reviews of multivocal literatures", *Review of Educational Research,* , pp. 287-292.

Paulus, S. (2009) "A GRC reference architecture", *Kuppinger Cole Overview Report,* [Online], . Available from: http://www.kuppingercole.com/report/sp_overview_repo_grc_arch_051009. [25 November 2012].

Petter, S., DeLone, W. and McLean, E. (2008) "Measuring information systems success: models, dimensions, measures, and interrelationships", *European Journal of Information Systems,* vol. 17, no. 3, pp. 236-263.

Petter, S., DeLone, W. and McLean, E.R. (2012) "The Past, Present, and Future of" IS Success".", *Journal of the Association for Information Systems,* vol. 13, no. 5.

Poston, R. and Grabski, S. (2001) "Financial impacts of enterprise resource planning implementations", *International Journal of Accounting Information Systems,* vol. 2, no. 4, pp. 271-294.

PricewaterhouseCoopers (2007) *Governance, Risk Management and Compliance: Sustainability and Integration supported by Technology*, PricewaterhouseCoopers International Limited, Germany.

PricewaterhouseCoopers (2004) *Integrity-Driven Performance*, PricewaterhouseCoopers International Limited, Germany.

Racz, N., Panitz, J., Amberg, M., Weippl, E. and Seufert, A. (2010a) "Governance, Risk & Compliance (GRC) Status Quo and Software Use: Results from a Survey among Large Enterprises", *Proceedings of the 21st Australasian Conference on Information Systems (ACIS), Brisbane, Australia*.

Racz, N., Seufert, A. and Weippl, E. (2010b) "A Frame of Reference for Research of Integrated Governance, Risk & Compliance (GRC)", *Proceedings of IFIP CMS 2010*.

Racz, N., Seufert, A. and Weippl, E. (2010c) "A process model for integrated IT governance, risk, and compliance management", *Proceedings of the Ninth Baltic Conference on Databases and Information Systems (DB{\&}IS 2010)*, pp. 155.

Rai, A., Lang, S.S. and Welker, R.B. (2002) "Assessing the validity of IS success models: An empirical test and theoretical analysis", *Information systems research,* vol. 13, no. 1, pp. 50-69.

Rashid, M., Hossain, L. and Patrick, J.D. (2002) "The evolution of ERP systems: a historical perspective
" in *Enterprise resource planning solutions and management* IRM Press, Hershey, pp. 35-50.

Rasmussen, M. (2009) "Foundations of GRC: Establishing an Enterprise View of Risk & Compliance", *Corporate Integrity, Governance, Risk Manager and Compliance Research,* [Online], . Available from: http://grc2020.com/blog/establishing-an-enterprise-view-of-risk-compliance/. [25 November 2012].

Robey, D., Ross, J.W. and Boudreau, M. (2002) "Learning to Implement Enterprise Systems: An Exploratory Study of the Dialectics of Change", *J.Manage.Inf.Syst.,* vol. 19, no. 1, pp. 17-46.

Rosemann, M. and zur Muehlen, M. (2005) "Integrating Risks in Business Process Models", In *16th Australasian Conference on Information Systems (ACIS), Sydney*.

Ross, J.W., Weill, P. and Robertson, D.C. (2006) *Enterprise architecture as strategy: Creating a foundation for business execution,* Harvard Business School Press.

Ross, J.W. and Vitale, M.R. (2000) "The ERP Revolution: Surviving vs. Thriving", *Information Systems Frontiers,* vol. 2, no. 2, pp. 233-241.

SAP (2009) *An Integrated Approach to Managing Governance, Risk and Compliance. Drive Business Performance and Stakeholder Confidence.*

Sarbanes-Oxley Compliance Journal (2005) "Enforcing application controls under SOX"

Sarker, S. and Lee, A.S. (2003) "Using a case study to test the role of three key social enablers in ERP implementation", *Information & Management,* vol. 40, no. 8, pp. 813-829.

Scott, J.E. and Vessey, I. (2002) "Managing risks in enterprise systems implementations", *Commun.ACM,* vol. 45, no. 4, pp. 74-81.

Seddon, P.B. (1997) "A respecification and extension of the DeLone and McLean model of IS success", *Information systems research,* vol. 8, no. 3, pp. 240-253.

Seddon, P.B., Calvert, C. and Yang, S. (2010) "A multi-project model of key factors affecting organizational benefits from enterprise systems", *MIS quarterly,* vol. 34, no. 2, pp. 305-328.

Seewald, N. (2002) "Enterprise resource planning tops manufacturers' IT budgets", *Chemical Week,* vol. 164, no. 35, pp. 34.

Shang, S. and Seddon, P.B. (2002) "Assessing and managing the benefits of enterprise systems: the business manager's perspective", *Information Systems Journal,* vol. 12, no. 4, pp. 271-299.

Soh, C., Kien, S.S. and Tay-Yap, J. (2000) "Enterprise resource planning: cultural fits and misfits: is ERP a universal solution?", *Communications of the ACM,* vol. 43, no. 4, pp. 47-51.

Soja, P., Themistocleous, M. and Cunha, P.R. (2011) "Playing Catch up: How Different Is Large Scale Enterprise Systems Implementation in Transition Countries and Organizations?", *System Sciences (HICSS), 2011 44th Hawaii International Conference on*IEEE, , pp. 1.

Soja, P. (2006) "Success factors in ERP systems implementations: Lessons from practice", *Journal of Enterprise Information Management,* vol. 19, no. 4, pp. 418-433.

Somers, T.M. and Nelson, K.G. (2004) "A taxonomy of players and activities across the ERP project life cycle", *Information & Management,* vol. 41, no. 3, pp. 257-278.

Somers, T.M., Nelson, K. and Karimi, J. (2003) "Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument: Replication within an ERP Domain", *Decision Sciences,* vol. 34, no. 3, pp. 595-621.

Spanaki, K. and Papazafeiropoulou, A. (2013) "Analysing The Governance, Risk And Compliance (Grc) Implementation Process: Primary Insights", *In the Proceeding of European Conference of Information Systems (ECIS),* Completed research paper 58

Sumner, M. (2005) *Enterprise Resource Planning,* Pearson Education

Suri, H. (2011) "Purposeful sampling in qualitative research synthesis", *Qualitative Research Journal,* vol. 11, no. 2, pp. 63-75.

Suri, H. and Clarke, D. (2009) "Advancements in research synthesis methods: From a methodologically inclusive perspective", *Review of Educational Research,* vol. 79, no. 1, pp. 395-430.

Sutton, S.,G (2006) "Enterprise systems and the re-shaping of accounting systems: A call for research", *International Journal of Accounting Information Systems,* vol. 7, no. 1, pp. 1-6.

Tan, C. and Pan, S. (2002) "ERP success: the search for a comprehensive framework", *AMCIS 2002 Proceedings*, paper 132.

Tapscott, D. (2006) "Trust and Competitive Advantage: An Integrated Approach to Governance, Risk & Compliance", *New Paradigm Learning Corporation,* [Online], . Available from: http://204.154.71.138/pdf/Trust-and-Competitive-Advantage.pdf. [25 November 2012].

Teoh, S.Y. and Pan, S.L. (2008) "Understanding the influences of social integration in enterprise systems use", *Journal of Enterprise Information Management,* vol. 21, no. 5, pp. 493-511.

Teoh, S., Tng, Q. and Pan, S. (2008) "The emergence of dynamic capabilities from a SME-enterprise system upgrade", *16th European Conference on Information Systems* (ECIS).

Themistocleous, M., Irani, Z. and O'Keefe, R.M. (2001) "ERP and application integration: exploratory survey", *Business Process Management Journal,* vol. 7, no. 3, pp. 195-204.

Themistocleous, M., Soja, P. and da Cunha, P.R. (2011) "The same, but different: enterprise systems adoption lifecycles in transition economies", *Information Systems Management,* vol. 28, no. 3, pp. 223-239.

Umble, E.J., Haft, R.R. and Umble, M.M. (2003a) "Enterprise resource planning: Implementation procedures and critical success factors", *European Journal of Operational Research,* vol. 146, no. 2, pp. 241-257.

Umble, E.J., Haft, R.R. and Umble, M.M. (2003b) "Enterprise resource planning: Implementation procedures and critical success factors", *European Journal of Operational Research,* vol. 146, no. 2, pp. 241-257.

Urbach, N. and Müller, B. (2012) "The updated DeLone and McLean model of information systems success" in *Information Systems Theory* Springer, , pp. 1-18.

Vicente, P. and da Silva, M.M. (2011) "A conceptual model for integrated governance, risk and compliance", *Proceedings of the 23rd international conference on Advanced information systems engineering*Springer-Verlag, Berlin, Heidelberg, pp. 199.

Volkoff, O. (1999) "Enterprise system implementation: A process of individual metamorphosis", *American Conference on Information Systems (AMCIS)*

Volonino, L., Gessner, G.H. and Kermis, G.F. (2004) "Holistic Compliance with Sarbanes-Oxley", *The Communications of the Association for Information Systems*, *14*(1), 45.

Walsham, G. (1995) "The emergence of interpretivism in IS research", *Information Systems Research,* vol. 6, no. 4, pp. 376-394.

Ward, J., Hemingway, C. and Daniel, E. (2005) "A framework for addressing the organisational issues of enterprise systems implementation", *The Journal of Strategic Information Systems,* vol. 14, no. 2, pp. 97-119.

Weber, J., Bramsemann, U. and Heineke, C. (2004) *Wertorientierte Unternehmenssteuerung: Konzepte - Implementierung - Praxisstatements (transl. Value-Based Management: Concepts - Implementation - Practical Experiences).*, Gabler, Wiesbaden.

Wee, S. (2000) "Juggling toward ERP success: Keep key success factors high", *ERP News, Panorama Consulting group, pp* 1-5.

Wiesche, M., Berwing, C., Schermann, M. and Krcmar, H. (2011a) "Patterns for Understanding Control Requirements for Information Systems for Governance, Risk

Management, and Compliance (GRC IS)", *Advanced Information Systems Engineering Workshops*Springer, , pp. 208.

Wiesche, M., Schermann, M. and Krcmar, H. (2011b) "Exploring the contribution of Information Technology to Governance, Risk Management and Compliance (GRC) initiatives", *ECIS 2011 Proceedings*.

Wilder, C. and Davis, B. (1998) "False starts, strong finishes", *Information Week,* , no. 11, pp. 41-53.

Wilderman, B. (1999) *Enterprise Resource Management Solutions and their Value.*, MetaGroup, Stanford, CT.

Yen, H.R. and Sheu, C. (2004) "Aligning ERP implementation with competitive priorities of manufacturing firms: An exploratory study", *International Journal of Production Economics,* vol. 92, no. 3, pp. 207-220.

Yin, R.K. (2009) *Case study research: design and methods,* 4th edn, Sage, London.

Yu, Y.R., Seo, S.C. and Kim, B.K. (2013) "IT GRC-based IT internal control framework", *Advanced Communication Technology (ICACT), 2013 15th International Conference on*IEEE, , pp. 382.

Yusuf, Y., Gunasekaran, A. and Abthorpe, M.S. (2004) "Enterprise information systems project implementation: A case study of ERP in Rolls-Royce", *International Journal of Production Economics,* vol. 87, no. 3, pp. 251-266.