SUCCESS FACTORS IN INFORMATION TECHNOLOGY PROJECTS

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Abstract

Concern for project failures and successes have posed a controversial and much debated topic amongst scholars and practitioners alike. IT projects are no exceptions and they too suffer from a high rate of failure. This research aims to explore the reasons why certain IT projects succeed). Besides its academic importance, the research intends to assess the implications for successful implementation of current and future IT projects. The review of the extant literature reveals the enormity of the challenges involved in minimising or avoiding project failures. Present work is contextualizing these issues in a large national organisation with branches throughout the KSA.

The Saudi Arabia constitutes the case study for this research. Qualitative methodology was adopted to generate and collect adequate and relevant data. Main instruments were; Semi-structured interviews involving senior managers in five geographical areas who were involved in the management of the IT projects and selected project documents. Thematic analysis was used and led to emergence of seven main ‘themes’, 19 major ‘issues’, and the construction of the first time generic model for success of IT projects.

The core issues identified in the model are: Quality, Time and Cost at three levels; individual, organisation and environment with specific order of importance. The implications of the findings for the theory and practice have been identified. It is also recommended that there is a need for further research into individual and contextual factors that influence both managers as well as the circumstances under which IT projects are implemented.

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Chapter One

1. Introduction

1.1 Background

This study is set in the National Guard Health Affairs (NGHA) in Saudi Arabia. The context of the study is described in greater detail in Chapter 3 where the geographical, political, economic and cultural features are discussed.

This study is instigated by two phenomena. The first of these is the high rate of project failures in general and of Information Technology (IT) Projects in particular. Alfaadel et al. (2008) have reported a failure rate of 52% for Saudi IT projects and have identified some of the underlying causal factors. One of the main thrusts of this study will be to identify a set of pertinent success and failure factors for IT projects from the literature and to investigate their prominence in the context of Saudi Arabia.

The second phenomenon driving this study is the singling out of the National Guard Health Affairs (NGHA) for a prestigious international award for the successful implementation of IT solutions within healthcare (http://www.ngha.med.sa/English/MediaCenter/News/Pages/2010-1-30_6.aspx). Against a backdrop of IT project failure, there was an outstanding shining example of success namely, the NGHA, whose successful strategic project planning and implementation won it the award for excellence in electronic health records in Dubai in 2010 (AlTuwaijri, 2011). Hence, rather than focusing exclusively on root causes of failure, this particular organisational success story held out the prospect of becoming a case of “good practice” for

project success in Saudi Arabia by clearly identifying those factors that were considered important in its strategic planning and implementation over a ten year period. Focusing the current research on a case study is well supported by AlTuwaijri (2011) who has argued that the importation of an IT solution designed to meet needs identified in another country might not, per se, be the panacea for successful IT implementation elsewhere. He argues strongly for situationality and localisation in the planning and implementation of information systems. Such imported IT solutions, then, should only be viewed as templates that need to be carefully crafted to reflect local and national conditions and requirements.

1.2 Why Projects Fail: A brief review

There are many reasons for project failures (Lam et al., 2010) in general and IT projects in particular (Standing et al., 2006). Alfaadel et al, (2008) has identified causal failure factors such as lack of effective planning, training and development and various managerial issues as contributing to the 52% failure rate in Saudi Arabia. There are a number of factors underlying project planning and implementation which determine the ultimate success or failure of the project. Projects can fail if they are not completed in the allocated time, if they exceed their budgetary requirements and, crucially, whether or not they finally achieve their planned objectives. Projects fail due to lack of effective planning and their inability to deliver the expected business value and return on investment Asay (2008).

A full discussion of success and failure factors in IT projects is presented in Chapter 2. While there is an abundance of literature on IT projects'

success/failure factors generally, Alfaadel et al., (2008) has commented on the paucity of such studies in the context of Saudi Arabia. One of the aims of this study is to address this deficit in research by making a contribution in the Saudi context. However, as many developed countries still need to undertake IT projects in the decades ahead, this study also aims at making a contribution to the general corpus of research into this topic.

While Asay (2008) emphasise project completion within time and budgetary constraints, others such as Wysocki and McGary (2003) and Senior and Flemming (2010) believe that the success or failure of a project are functions of the leadership qualities of project managers and their ability to balance such factors as the project scope, quality, cost, time and resources.

Eve (2007) focused on the role of senior management in ensuring that IT projects achieved successful outcomes. Project success was seen as dependent on the ability, commitment and dedication of the senior management team of an organisation to plan, develop, manage and deliver project activities. The guidance and support of the senior management team was seen as playing vital roles in deciding whether a project could achieve success as it was the senior management team in an organisation that planned a strategy, vision, mission, values, activities and structure of the project. It was also the senior management team that assessed and analysed the project environment and how best the project could meet its desired outcomes. This study aims at a critical evaluation of such a central role in IT project success being assigned to senior management by balancing these against the roles of middle management and other team members.

In the literature, there is an array of sets of causal success/failure factors which include issues other than managerial roles. For example, Lock (2007) attributes success to the conducting of a rigorous risk assessment covering “what if?” scenarios. Additionally, rather than overly focusing on the role of management, Lock (2007) also considers the importance of the project team being highly skilled and being able to effectively work together. On this latter point, Jenewein and Morhart (2008).have commented on the importance of trust which was also found in this study in the context of delegation of authority.

The importance of corporate governance as a success factor was asserted by Haspeslagh(2010) who viewed poor corporate governance as a pivotal failure factors. Different schemes of success and failure factors are to be found in the literature, but they often include similar issues the only difference being the degree of importance attached to certain factors or singling out certain factors as of crucial importance. Cost or time overruns were important determinants of project failure according to (Jones and Northrop,1996a) while (May, 1998)stressed the importance of the quality of the project as of equal importance to meeting budgetary and time schedules. Certain failure factors were so important according to Flowers (1996) that the presence of even one of them, not to mention a number of them would be sufficient to sound alarm bells in terms of project failure. These factors included sub-optimal functionality, lack of user-friendliness for the end user and failure to provide value for money as the cost of the project outweighed its benefits. Van Dijk (2009) identified 7 “big hitters” which mostly reflect different managerial failures or skills deficits.

Smith (2002) avoids being prescriptive in terms of lists of success and failure factors. Instead, he adopts a more holistic view by seeing IT project failure simply as the failure “to make the journey from conception to successful implementation”. This study confirms this view of Smith (2002) by finding that failure is rarely attributable to a single issue but usually involved a number of issues which, in combination, resulted in the failure of the project.

In general, the literature tends towards identifying three key factors for judging the success/failure of a particular IT project. These three factors are:

- The project is completed on time
- The project is completed within its budget
- The quality of the the implemented project in meeting functionality requirements

However, a more thorough treatment of success and failure factors will be presented in the literature review in Ch 2.

1.3 Importance of this study

In view of the paucity of research into IT projects in Saudi Arabia (Alfaadel, et al., 2008), this study aspires to making a valuable contribution to the study of IT projects in this context. However, it is hoped that the findings may also have wider implications. Despite the many IT projects already attempted, the evidence suggests that there is still much work ahead which will involve IT solutions. Peter Day (BBC World Service, 2013) commenting on the “technological imperative”, points out that the phase of implementing IT projects for large corporations is now being followed by IT projects for smaller

organisations to remain competitive. David Cleveley of Cambridge University, interviewed during the programme, makes the point that, even for smaller organisations, internet speed and connectivity really matters. However, he cautions that two areas will be more problematic for IT solutions due to their greater reliance on human agency. These are education and healthcare.

The programme demonstrates that even for small farmers, the installation of monitoring devices for crop growth and dairy farming will become imperative in the near future, as those who employ this technology will gain a competitive edge over others. This is already happening in localities which do not even have electrical power supply. A project in Kenya uses solar powered satellite connectivity for a number of small businesses.

However, even in developed economies, there will be a need for numerous IT projects in the years ahead. The reason for this lies in governmental policies to offer equality of access to the internet for all its citizens. In Sweden, it was found that providing access for the last 30% of the population to high speed fibre optic access will cost 8 times more than it did for the first 70% due to isolated rural communities needing to be connected. It is claimed that, in the US, 90 million people still do not have high speed connection and are, thus, disadvantaged. These people live in remote rural communities in areas such as Colorado and California. Government policy dictates that these should have equality of access. Thus, the US Government is now addressing the inequality that results in “connectivity black holes” by ensuring that $45 billion is allocated for this purpose over the next 10 years. The British Government is equally committed to offering high speed access to all citizens and aspires to making

the UK the first in Europe to provide a comprehensive high speed broadband connectivity by 2015. Clearly, provision of high speed connectivity for remote communities in Saudi Arabia will become an imperative. Hence, the importance of this research in identifying failure and success factors for current and future IT projects.

1.4 Rationale for the Research

A strong case has been made by Al-Ahmad (2012) for the identification of critical factors determining success or failure as a proactive strategy arguing that often such causal factors are only identified following the successful completion or abandonment of the project.

The rationale for this study is to explore IT project implementation in the NGHA in Saudi Arabia in order to better understand its status as a paradigmatic case of good practice. An exploratory study in a developing country can become a "laboratory" for testing theories and assumptions which have emerged from developed economies and can lead to the refinement of such assumptions or even the development of fresh theories as has been suggested by Xu and Meyer (2013). One reason for undertaking this study is to critically evaluate current schemes of project success/failure by exploring the NGHA as a paradigmatic case in a Middle Eastern context.

Secondly, much of the literature has extolled the role of management in project failure or success. This study also examines the role of management and assesses the extent to which such successes or failures were attributable to leadership and their style of project management.

1.5 No previous study of hospitals in Saudi Arabia

There is a paucity of literature on IT project success or failure in Saudi Arabia (Alfaadel, et al., 2008) despite the fact that $800 million has been invested in IT infrastructure projects alone in Saudi Arabia. The authors estimate that the failure rate of Saudi IT project failure is as high as 52.43%. Although there is clearly a need for research into IT project failure in Saudi Arabia, this study wishes to identify key success factors for IT projects in the Saudi healthcare sector.

Towards the end of 1990s, it was claimed that several thousand people died each year in the US alone as a result of medical errors that could have been prevented Kohn et al. (1999). In response to this shocking statistic, many healthcare organisations tried to implement IT solutions, especially the Computerized Patient Records (CPR) solution in order to minimise human error and eliminate costs Haux (2006). Many hospitals have invested significantly to plan, procure, and implement these advanced systems, including the current focus on computerized physician order entry (CPOE).

Since then, many countries have attempted to implement IT solutions for many aspects of healthcare including an Electronic Health Record (EHR) which was intended to be a database allowing clinician's speedy access to patients' previous medical history. The National Guard Health Affairs (NGHA) is a large health organization, which provides a modern medical care to all National Guard employees and their dependents. Under its umbrella, there are four hospitals and sixty primary and secondary health centres located throughout Saudi Arabia with 2000 in-patient beds in total. NGHA serves more than 2.5

million out-patients and around 60,000 in-patients annually. NGHA is organized in three regions: Central Region, Western Region and Eastern Region with the Eastern Region having two hospitals in Al Hasa and Dammam. NGHA is accredited by the Joint Commission International. The NGHA will be described in greater detail in Ch. 3 which provides more background information on the context of the current study and in Chapter 5 which is a case study of IT projects in the NGHA. This study contextualises the state of IT projects in Saudi Arabia in general and NGHA in particular.

The current research aims at addressing the paucity of literature into IT solutions within the Saudi healthcare system in general and in the NGHA in particular.

1.6 Aims, Objectives and Research Questions

The over-arching aim of this research is to explore the reasons why certain IT projects succeed. In order to realise this aim a case study of IT project implementation in the NGHA was undertaken along with semi-structured interviews with senior and middle managers in order to ascertain their perceptions of why IT projects succeeded or failed. By employing this qualitative method of a case study supported by data obtained from interviews, and project documents, it was intended that a critical appraisal could be made of the NGHA as a paradigmatic case of IT project implementation.

Research objectives

The objectives are:

- To review and evaluate the academic relevant literature on the factors identified as underlying IT project success and failure
- To establish the root causes of IT project failures and success in Saudi Arabia
- To identify issues specific to IT projects in Saudi Arabia
- To focus on the role of management in IT project planning and implementation.
- To assess the implications of the research findings for successful implementation of current and future IT projects

Key research Question

What factors contribute to success/failure of the IT projects?

Research sub-questions

1. What are the success factors that underline IT project success?
2. What is the root causes of IT project failure?
3. What managerial measures can be adopted to minimise the occurrence of IT project failures?
4. What issues are specific to IT projects in context of Saudi Arabia?

1.7 Methodology

A qualitative approach was adopted as most suitable for meeting the exploratory nature of this research. Two instruments for generating data were utilised, firstly a case study of IT project implementation and secondly, semi-

structured interviews with senior and middle project managers. Both of these methods generated rich and nuanced data. Themes which emerged from the case study were further explored during the interview phase of the research.

The purpose of this research was to discover, from the perceptions of key project senior and middle managers, the reasons why IT projects failed due to exceeding their target completion time and/or significant budget overspend within the NGHA in order to be able make recommendations leading to more positive outcomes for existing and future projects.

The research was qualitative in nature and rested on the assumptions of interpretive approaches with validity being rooted in factors such as inter-subjectivity. The researcher was, thus, committed to a subjectivist epistemology which sees reality as largely constructed as the human mind attempts to make sense of the data that is presented. This issue is more fully explored in Chapter 4.

Following the categories of case studies presented by Yin (2003, pp. 54 – 67), the case study adopted here was that a single embedded type focused on IT projects in the NGHA. The case of the NGHA was identified as a paradigmatic type Flyvbjerg (2011). This was not to claim that IT projects in the NGHA were without their shortcomings but rather that, in a Middle Eastern context, these projects and their implementation were regarded as exemplary. This was due to what Xu and Meyer (2013) described as this case study being “a laboratory” for testing assumptions underlying success and failure factors derived from developed economies within the developing economic context of the Middle

East. Semi-structured interviews enabled the researcher to collect data relating to the perspective of project managers on issues of success and failure

The case study involved 10 IT projects in the NGHA in Saudi Arabia. Following the investigation of documentary evidence, issues which arose were probed in greater depth by the researcher during semi-structured interviews with 14 project managers spread across the different NGHA locations (see Chapter 3).

The sample of 10 IT projects were selected based on this being the number completed since 2000 or at a sufficiently advanced stage to be able to predict whether they would meet the criteria of delivering all functionalities on time and within budget.

The sample size of 14 interviews was determined by a strategy of saturation sampling. 12 interviews were conducted and the initial analysis was conducted whereby themes were identified. A further 2 interviews were then conducted and, as no new themes emerged, it was concluded that saturation point had been reached and that further interviews were unlikely to yield any new themes.

Data from the case study and interviews were analysed using a thematic approach. Data from each phase of the study were integrated through triangulation. As a significantly large amount of data was generated, thematic coding and the development of categories enabled the researcher to render the data into a schema which made it manageable for comprehension and analysis.

Two analytical lenses were used in analysing the data. The first entailed viewing the success/failure factors in a wider context taking into account socio-cultural factors. In this way, Xu et al., (2013) was followed by considering the NGHA in Saudi Arabia as a “laboratory” setting for testing theories and assumptions underlying schemes of success and failure factors which had emerged from developed economies. This resulted in the refinement of these schemas both conceptually and in their practical application.

The second analytical lens was a critical evaluation of the roles of senior and middle management in project implementation by balancing their contributions against issues of time and context.

This analysis resulted in conclusions and recommendations which were highly nuanced.

1.8 Outline of the Thesis

The thesis consists of 9 chapters as outlined below:

Chapter 1 presents the background to the current study. It originates in the concern of organisations and governments at the extent of project failures generally but of IT projects in particular. To address the latter issue, an abundance of literature has resulted in many schemes of success and failure factors with special reference to IT projects. This study aims at addressing the paucity of literature related to Saudi It projects and failures. The purpose statement for this study is to address this issue by understanding concepts of success or failure within the context of Saudi Arabia.

Chapter 2 presents a critical review of the literature. An attempt is made to reach a working definition of what is to be regarded as a success or failure. Even though a number of criteria are established, in practice these are applied with some flexibility. For example, a 5% overspend on the budget would not be sufficient to deem the project a failure.

Various schemes of success and failure factors are discussed and the special emphases of these schemes are noted and critically appraised. For example, schemes that identified the “big hitters” were mainly focused on the roles and tasks of managers. A view emerges that causal factors of failure are rarely found to be singular but that failure is often due to a combination of factors Smith (2002). In fact, Beenker (2004) sees parallels between the causes of accidents and disasters and IT project causal failure. He argues that small individual events, which considered on their own might not be significant, become connected in such a way as to amplify the effects of each other with disastrous consequences.

There is an abundance of literature on IT projects worldwide especially on their employment within healthcare systems. However, there has been a shift away from laying the blame for failure on the technology towards the actions of the various human agents involved in the projects. Although idiosyncratic findings exist, there is a convergence of judgment that three crucial factors determine the outcome of IT projects. These concern the degree of clarity among project managers about the objectives and the desired functionality required, the completion of the project in time and also within budget. The majority of IT failures involve one or more of these three factors. Apart from these three

major factors, effective communications between managers and others emerged as important, as also did technical knowledge on the part of the project manager and the user-friendliness of the completed IT solution for the intended end user. These findings from the literature helped to frame the research questions for this study.

Chapter 3 presents the context of the study. The geographical location and climatic conditions of Saudi Arabia is presented as well as religious and cultural factors. The historical development of the Saudi state is presented with the various stages of its development outlined. The pivotal position of Saudi Arabia in a troubled Middle East is explained and its political economy is evaluated as a country which holds the largest known and verified stocks of crude oil Niblock and Malik (2007).

The position of the National Guard Health Affairs (NGHA) is critically examined and how its work was to be enhanced by the implementation of IT solutions within healthcare. The relative success or failure of these projects was evaluated in the context of the very high failure rate of such projects globally. This context chapter is most important for an appreciation of the case study and its analysis in Chapter 5.

Chapter 4 presents a justification of the use of qualitative methods for addressing the research questions. An interpretive approach is based on the assumptions of a subjectivist epistemology which aims at exploring how human agents involved in the IT projects understand their roles and also how they come to view what constitutes success or failure.

A case study strategy of inquiry considers IT project implementation within the NGHA as a paradigmatic case within a Middle Eastern or developing economy. Following Xu and Meyer (2013), It projects in the NGHA are considered to be “laboratory” settings for evaluating anew the assumptions underlying success and failure factors developed from more developed Western economies. Thus, concepts of success and failure were considered afresh based on the perceptions of the 14 project managers who were interviewed in this study.

Chapter 5 outlines how the case study was conducted with reference to documentation and various reports in the public domain. The plurality of sources of information may not have been as extensive as was desirable, as the proceedings for the awarding of various contracts are not always as transparent as they could be. Despite some opacity in the data, it was possible to arrive at an understanding of IT projects in the NGHA and to meet the aims and objectives of this exploratory study.

The chapter also discusses the findings of the case study with reference to the literature. The findings of the case study enabled the researcher to critically evaluate the extant literature and to contribute to it from a Middle Eastern perspective.

The findings and analysis of the 14 semi-structured interviews are presented. The issues which were explored related to the findings of the case study and enabled a more nuanced understanding within this exploratory study. The data was analysed by a process of thematic analysis which was based on paper-based transcripts of the recorded data. The themes were further reduced to

over-riding categories which rendered the data manageable from an analytical perspective

Chapter 6 is a discussion of the findings of the semi-structured interviews with reference to the literature. The findings allowed for a more nuanced critical evaluation of the various schemes of success and failure factors and, indeed, the very notions of success and failure in a Middle Eastern context. The findings from the documents and observations of the case study, combined with the findings of the interview data in such a way that the main thrust of the findings from one source were confirmed and corroborated by the findings from the other source. Thus, the internal validity of this exploratory study was strengthened.

The final chapter, chapter 7, summarises the findings of this exploratory study which makes a contribution to the much needed research into IT projects in Saudi Arabia.

The study did have some limitations especially deriving from the opacity of information and sometimes lack of transparency which often characterises Middle Eastern projects. Nevertheless, the honesty of disclosures by key project managers served to balance this limitation.

Recommendations include some which are specific to a Middle Eastern context as well as some which are more general in nature. Approaching this exploratory study as a “laboratory” for testing assumptions of project success and failure derived from more Western contexts Xu and Meyer (2013), resulted in an

understanding of project planning and implementation which is more helpful in a Middle Eastern context.

Chapter Two

Literature Review

2.1 Introduction

Project failure or success generally has recently become a topic of concern among many stakeholders. For example, concern about the risk of failure of major costly projects prompted the UK Government to set up the Major Projects Authority (MPA) on 31st March 2011 (MPA, 2011). The work of this authority is to monitor and review major projects and, where required, to intervene or even to terminate a project that is failing. This year alone, 191 projects, worth £353.7 bn., were reviewed resulting in savings for the taxpayer amounting to £1.7 bn. 8 of the 191 projects were given a "red light" rating meaning that they are adjudged to be unachievable. At least 4 of these 8 "red light" projects are IT projects (Shead, 2013).

Another recent example from the UK is the abandonment by the BBC of an IT news archiving project at a loss of £100 million (BBC, 2013). While lessons can be learned from project failures in general, this literature review will focus on IT projects in particular and especially on IT projects in Saudi Arabia.

In recent years, there has been an intensification of interest in many developing countries into the identification of critical success factors (CSFs) underlying IT projects Chevers and Duggan (2012).Attention had already been focused on the fact that despite the success stories, many IT systems implementation in developing countries had been deemed to have failed either partially or totally Heeks (2002).Al-Ahmad makes the point that traditionally, causes of failure are

only assessed following the successful completion or abandonment of the project (Al-Ahmad, 2012) and makes a strong case for the identification of critical factors determining success or failure for a pro-active approach to IT project planning and management. Whilst the main focus of this study is to discover the critical factors determining success, it will also be necessary to note failure factors so that these can be avoided in future projects. However, merely avoiding failure factors will not, in itself, guarantee success and, for that reason, the main focus of this study will be on identifying key success factors which will be indicators of the likelihood of project success.

Despite the fact that many empirical studies have been conducted into IT projects in order to identify the CSFs, most of these studies have been in the context of developed economies Gauld (2007). Hussein et al. (2007) has also pointed out that these studies were confined mainly to the private sector. Ngai et al. (2007) have highlighted the scant research into IT projects CSFs in high income developing economies despite the potential of such counties for significant IT project development. Xu and Meyer (2013) have put forward a cogent argument for considering a developing economy as a “laboratory” for testing the theoretical assumptions underlying CSFs derived from IT projects which were situated in developed economies. In this study, this proposal of Xu and Meyer (2013) is considered as a theoretical lens for analysing and interpreting the data related to the NGHA from a case study and semi-structured interviews.

In the context of Saudi Arabia, Alfaadel, et al., (2008) have drawn particular attention to the paucity of literature on IT project success or failure, even

despite the fact that $800 million has been invested in IT infrastructure projects alone in Saudi Arabia. The authors estimate that the failure rate of Saudi IT project failure is as high as 52.43%. One previous study in a Saudi context, Alghobiri (2003), did attempt to identify CSFs in IT projects, though the author relied on existing schemes of CSFs derived from contexts of developed economies.

Although there is clearly a need for research into IT project failure generally in Saudi Arabia, this study wishes to identify key success factors for IT projects in the Saudi healthcare sector.

In the remaining parts of the chapter, attention will be paid to the success and failure factors. This section will explore the main factors identified in the literature that are responsible for the success or failure of the IT projects. Following this, issues of project management and their relationships to project success or failure will be discussed. Here the role of project management in implementing the IT projects will be discussed in some detail. Since IT projects are carried out in the health sector and, more specifically, in the NGHA, the dynamics of the IT projects in the context of Health and, more specifically, in NGHA, will be discussed in detail.

2.2 Success and Failure Factors

There are a number of factors underlying project planning and implementation which determine the ultimate success or failure of the project. Projects can fail if they are not completed in the allocated time, if they exceed their budgetary requirements and, crucially, whether or not they finally achieve their planned

objectives. Projects fail due to lack of effective planning and their inability to deliver the expected business value and return on investment (Asay, 2008).

Project success depends on the ability, commitment and dedication of the senior management team of an organisation to plan, develop, manage and deliver project activities. The guidance and support of the senior management team play vital roles in deciding whether a project can achieve success. It is the senior management team in an organisation that plans a strategy, vision, mission, values, activities and structure of the project. It is the senior management team that assesses and analyses the project environment and how best the project can meet its desired outcomes (Eve, 2007).

Wysocki and McGary (2003) believe that the likelihood of success or failure of a project depends on the ability of project leaders to manage the project scope, quality, cost, time and resources. Project scope is a statement that outlines the boundaries of a project. It explicitly states what activities the project will carry out. The scope forms the foundation of a project. A clearly stated project scope is essential for a project to achieve success (ibid., 2003).

Wysocki and McGary (2003) state that the maintenance and delivery of high quality in each project activity are critical for project success. Project quality is the quality of the final outcome that is presented to the client. Projects that strive constantly to improve the quality of each of the activities that make up the final project are able to achieve success.

The importance of effective leadership and management for project success is highlighted by Senior and Flemming (2010). Effective leaders are individuals

that have the skills and competencies to visualise the end product. They have the ability to accurately assess the challenges present in the project environment and are able to develop suitable strategies to overcome these challenges. It is the leaders who have the foresight and vision to influence, motivate and energise staff in working together to meet project objectives.

Senior and Flemming (2010) further emphasise the importance of management skills. Project managers need to have the ability to understand the requirements of the project. They need to understand best practice in utilising project resources to achieve desired outcomes. They need to have the skills to manage project teams in a manner that ensures that team members work together to achieve project outcomes.

One of the root causes of project failure is the inability of leaders to effectively manage project costs. IT projects require a considerable investment of human and financial capital. Completing the project within the set budgets is essential for a project to achieve success. Some projects fail by not meeting the set deadline. Projects require proper equipment, physical facilities, and inventory. An inability to efficiently assess project equipment, physical facilities and inventory needs can lead to project failure (Lock, 2007).

Other projects fail due to the lack of accurate risk assessment management. Every project faces potential risks. It is the responsibility of the project leader to carry out detailed risk assessments to understand the kind of risks that project is likely to face. Project leaders need to develop and implement suitable risk management strategies to minimise the occurrence of such risks. An inability to

identify, recognise and manage project risks can be the deciding factor of a project's success or failure (Lock, 2007).

Projects success depends on the skills, personal qualities, abilities, competencies and expertise of the project team. The contribution of each and every staff member plays a crucial role in the completion of a project. It is the project manager's role to assess whether the project team has the appropriate skills to develop and execute the activities involved in a project. In case the project team lacks skills or there are poor performers in the project team, then this is likely to affect the quality of the final output and ability of the project in achieving success (Lock, 2007).

The presence of the element of trust is needed for a successful project. The present project team members can assist in creating a bond between members that signifies mutual working, respect and equal treatment of all. This helps project team members to work collectively together in the achievement of project goals (Jenewein and Morhart, 2008).

Projects require effective corporate governance procedures. A lack of effective corporate governance processes can result in project failure. However, the presence of effective corporate governance procedures assists organisations in being responsible for their actions and performance. They help in making project activities transparent (Haspeslagh, 2010).Assaf et al. (2013) assigned the blame for failure on the part of small contractors in Saudi Arabia on the lack of effective and competent management, defective accounting systems and the absence of a well-conceived business plan.

One case study in a Middle Easter context identified the absence of ownership and communication of knowledge, poor systems of monitoring performance, scope creep, a tendency to view IT in isolation from other aspects of the business and poorly conceived strategies for the management of change Al-Mashari and Al-Mudimigh (2003).

Another study in a similar context identified management commitment, Strategic vision and a strategy for change as important CSFs in additional to targeted training Al-Turki (2011). Listed the top five CSFs as clear lines of communication, user Al-Mudimigh et al., (2011) acceptance, continuous support from top management, clearly articulated goals and objectives and effective systems of monitoring.

Projects can achieve success and avoid failure if all of the above mentioned criteria are considered in the development and implementation of projects. However, the nature of every project is different, the aims and objectives of every project are likely to be different, the activities involved in the completion of every project are likely to be different, and the scope and requirements of every project are likely to be different. Project leaders need to understand the unique differences, demands and requirements of each project. They need to develop measures that can assist them in achieving project success.

It will be necessary to determine what constitutes success or failure. For example, would successful implementation with say a small time overrun of say 3 to 6 months count as a failure? Or if the project was successfully completed

but with a small budget overspend of say 2% or 5%, should that be regarded as a project failure?

Alfaadel, et al.use the criteria of the Van Der Westhuizen and Fitzgerald model (Van Der Westhuizen, and Fitzgerald, 2005) to define IT project success. An IT project is adjudged to be successful if the following criteria are met:

• It is completed on time and to budget, with all features and functions as initially specified

• The quality of the project management used is satisfactory

• It meets the needs of the project stakeholders

• The project achieves its business goals and purpose

• The end product is used frequently (the degree and manner in which users utilize the capabilities of the end product)

• The system information quality is high (for example, management reports, web pages are accurate and understandable)

• The service support from IT department is satisfactory (responsiveness, technical, and competency)

• The service support from IT department is satisfactory (responsiveness, technical and competency)

These criteria will be utilised here, so that even a small time overrun or a small budget overspend would still mean that the project is deemed to be unsuccessful. These stringent criteria mean that project management and planning will call for very careful cost estimation and realistic time targets for completion.

Similar factors are to be found in other literature, the only differences being the emphasis placed on certain factors. For example, cost and/or time overruns are important determinants of project failure according to (Jones and Northrop, 1996a) while (May, 1998) stresses the importance of quality problems in addition to failure to meet budgetary and time schedules. Flowers (1996) lists some factors and states that the presence of any or all of these would indicate project failure. These factors include sub-optimal functionality, not user friendly for the end user and failure to provide value for money as the cost of the project outweighs its benefits.

Noordam et al. (2007) mention three key factors. Once again, exceeding budget and time schedule is included but also stressed is the importance of the system being able to deliver its planned functionality. (Smith, 2002) sees IT project failure simply as the failure "to make the journey from conception to successful implementation". However, Van Dijk, (2009) insists on a scaled approach to assessing success and failure. He offers an example of a project scheduled to be completed in 3 months but actually overruns by 3 months (so a 100% overrun). A 3 month overrun might not be problematic in itself provided it did not significantly impact on other related projects. However, a 100% overrun on a 4 year project, so that it was completed in 8 years rather than 4 would most likely have severe cost implications. Thus, van Dijk (op. cit.) would allow some latitude on budgetary matters or time overruns but not exceeding 50% in either case provided the project achieved its planned functionality and met expected quality outcomes. Citing (Smith, op. cit.) van Dijk lists 6 stages through which most IT projects pass from beginning to completion:

• Project Conception;

• Project Initiation/Mobilisation;

• System Design;

• System Development;

• System Implementation;

• System Operation, Benefit Delivery, Stewardship and Disposal.

These 6 stages may overlap. Problems can arise at any stage, and most IT projects do run into problems at some stage. Smith (op. cit.) emphasises that a project reaches a "crunch" point when it is a matter of "all stops out" to successfully complete. He comments on the kinds of soft skills required of project managers at such moments – skills that are often neglected in the training of project managers.

Considering the 6 stages, Smith analyses the kinds of problems which can arise and possibly contribute to the project's ultimate failure. In all, he lists 40 possible problematic scenarios. These are root causes of project failure and usually a number of these works together to affect the outcome of the project. While it would not be prudent to ignore any one of these scenarios, Smith does indicate 7 of them which are of such crucial importance that he calls them "big hitters". These 7 big hitters are:

- Lack of senior management involvement or commitment
- Failure to focus on key business and end user needs
- Failure to break complex projects into manageable, separately contracted 'chunks'

- Poor and unimaginative project management
- Poor risk management and contingency planning
- Unclear contracts and poor contract management
- Insufficient focus on user training needs and the design of training interventions (Van Dijk, 2009, p. 18)

It can readily be seen that these 7 “big hitters” are chiefly focused on management skills and functions.

Whilst the focus of this research will be on success factors, there are good reasons for considering root causes of failures. Van Dijk (op.cit.) sees the benefits of considering root causes of failure as threefold:

- Better solutions and proposals
- Early warning of problems in delivery
- The potential to turn around a troubled project

(Van Dijk,. P. 19)

Noordam, et al. (2007) considers what affect the size of the project may have on its prospects for success. Very large projects worth in excess of 10 million Euros tend to have higher failure rates than projects cost around 1.5 million Euros. In addition to size, there is also the particular sector to consider and IT projects which are costly also tend to be riskier than other projects in other sectors.

Evans, et al. (2002) comment on the findings resulting from a risk factor indicator developed by Integrated Computer Engineering (ICE). Whilst a large number of factors were found, the database flags up the following 7 as the top risk factors for IT project failure:

- Failure to apply essential project management practices
- Unwarranted optimism and unrealistic management expectations
- Failure to implement effective software processes
- Premature declarations of victory
- Lack of programme management leadership
- Untimely decision-making
- Lack of pro-active risk management

(Evans, et al. 2002)

Although, these differ a little from the 7 “big hitters” identified by Smith, again the focus in on project managers: “...we repeatedly find through assessments...that while the mainstream software tasks have been reasonably well planned and implemented, certain essential project management practices are not. Some managers perceive these practices as bureaucratic red tape that only gets in the way of real engineering” (Evans, op. cit.)

The 7 factors resulting from the ICE database analysis were presented in order of the highest frequencies that these factors were actually root causes of project failures. The first factor, “Failure to apply essential project management practices” had a 57% frequency rate – in other words- the most commonly found root cause of project failure. The second factor “Unwarranted optimism

and unrealistic management expectations" had a 41% frequency. The remaining 5 in rank order had 30%, 20%, 13%, 8% and 3% frequency rates, respectively.

Other authors adopt different perspectives but with a similar focus on management. (Yeo, K.T., 2002) presents the factors as a "triple S" framework, the "S" standing for spheres of influence. These 3 spheres were process driven, context driven and content driven spheres of influence. (May, 1998) makes the point that most IT projects actually fail in some respects as they fail to meet all the expected outcomes. Obviously small time overruns or slightly exceeding budgetary targets would not render a project, strictly speaking, to be viewed as a failure if all the other expected outcomes had been satisfactorily achieved. However, he does make the point that outright failures do not occur because of mysterious causes, but unfortunately, these causes are often only discovered in a "post mortem" or at a stage where it is too late to effectively confront the problem.

The Standish Group (1995) produced some alarming statistics about US IT project failures. They claimed that $81 billion was spent on failed projects and another $59 billion on project overspends. Only one sixth of projects were completed on time and within budget and about one third were completely abandoned. Over 50% of projects were considered to be "challenged".

Reel (1999) places the emphasis on 5 essential success factors:

- Start on the right foot
- Maintain momentum

- Track progress
- Make Smart decisions
- Institutionalise post-mortem analyses

(Van Dijk, 2009) studied IT successes and failures in the context of the Dutch experience. He estimates that in the Netherlands, approximately one third of IT projects fail by not meeting their budgetary or time targets (p.34). He cites (Beenker, 2004) as pointing out that many IT projects fail at an early stage, or that the root cause of the failure occurs early on in planning and implementation. Beenker lists the 5 principal failure factors most often mentioned by managers in order of frequency. These were:

- Planning is too optimistic
- Badly phrased contracts
- Poor project management
- Poor communication
- Problems escalated too late for intervention

Thus, communication appears as one the key factors. The other 4 reiterate what was found in other studies already cited.

Beenker draws parallels between IT project failure and how accidents and disasters occur. Small individual events become connected and amplify each other with disastrous consequences.

Having considered a number of presentations of failure factors in the literature, what can be said of success factors. Noordam, et al.(2007) from the many

theories of project success, identifies 3 key factors that are essential for success:

- The project complies with the functionality agreed to in advance
- The project is delivered on time
- The project is delivered with budget

They comment that when these three factors balance each other, that one can speak of a project success. However, they go on to state that delivering the agreed functionality within the agreed budget and on time “is a laborious affair”.Noordam et al’s study found that following a standard methodology was also important for project success and that among these, PRINCE2. Derksen and Noordam (2006) was by far the most commonly used methodology, used by 73% of managers in his survey. Once again, the size of the project emerged as a factor with very large and complex projects being highly prone to failure.

Another success factor focuses on managers and their roles. Noordam comments on factors often cited in contemporary discussions such as the importance of emotional intelligence and functional knowledge. However important these may be for managers, his research found that the single most important management skill for successful project managers to have was technical knowledge. This technical knowledge will have been acquired through past experience of similar projects.

Another important skill for successful managers is the ability to carry out an effective risk assessment, which is also an important feature of PRINCE2. A risk is considered as any factor which may endanger the successful completion of

the project or which may lead to time or cost overruns or which may impair the quality of the completed project. Noordam asks at what point should risk assessment be conducted?

There were four basic responses to this question:

- Prior to the start of the project
- During the execution of the project
- Cyclically before and during the project execution
- No risk assessment is carried out

Of these responses, Noordam et al. note that it is the cyclical approach that is most closely associated with project success. 43% of those surveyed in their study responded that they applied the cyclical approach to risk assessment. It was noted by Noordam et al. that those responding that they never carry out a risk assessment was as high as 18%.

2.3 Project Management

The Project Management Institute, (PMI), (2000 as cited in Burke 2004) states that a project is a short term, temporary endeavour that is carried out for the purpose of developing a unique product or service.The British Standards Institution, BS, (2000:2 cited in Burke 2004) emphasies the importance of the activities of a project being synchronised with definite start and finish times.

Projects exist to meet specified project aims and objectives. Projects are to be completed within the preestablished schedule, cost and performance paramemters.

The above defintions of a project highlight the importance of the synchronisation of a set of interlinked activities that need to be carried out in a step by step manner. Projects require careful planning and execution. They require clearly defined aims and objectives. They are developed to meet the needs of customers, clients and organisations.

2.4 PRINCE 2 how projects should be formalised?

PRINCE2® is a standardised methodology for the development and delivery of projects and is used widely in both the UK and abroad (Edmonds, 2010). PRINCE stands for *projects in controlled environments*, and is used in both the public and private sectors in a wide range of sectors and organisations (Edmonds, 2010; Tomanek, Cermak and Smutny, 2015). As with the model offered by Elbeik and Thomas (1998), PRINCE2 provides a staged approach to the management of projects. As with other models of project management (Elbeik and Thomas, 1998; Tukel and Rom, 2001) it seeks to ensure that projects are completed within time and cost constraints and to a high standard of quality (Tomanek, Cermak, Smutny, 2015). Within this section the PRINCE 2 framework is outlined following the description and discussion offered by Tomanek, Cermak and Smutny (2015):

PRINCE2 provides a clear framework for the management of projects, and it is applicable to all projects regardless of scale, geography or organisation type. The framework places significant emphasis on the designation of roles and responsibilities. In this respect there are three key roles: the project board, the project manager, and team managers. The project board is ultimately responsible for the success of the project, and consists of key stakeholders

such as executives, senior representatives of the users of the projects, and key suppliers. The project manager is tasked with ensuring that the project delivers the requisite outcomes. The team manager is responsible for ensuring that the project is delivered within the requisite timescale, within cost and to the desired quality.

The framework is guided by seven core principles, consists of seven themes and seven processes. These are considered in turn.

2.4.1 Core principles of the framework

The first principle is that the project has an on-going and justifiable business case, that is to say, it must be within the interests of the organisation to develop and implement the project. The second principle is that that roles and responsibilities of those involved in the project are clearly and explicitly defined. The third principle is that the project is managed through a number of clear and distinct stages. The fourth principle is that the project is managed by exception, thus, issues are attended to as and when they arise. The fifth principle is that the project is focussed on the delivery of high quality products or outcomes. The sixth principle holds that those involved in the project (the project team) must learn from the experience of undertaking the project. The final principle is that the project management framework advanced by PRINCE2 must be tailored to meet the context of the specific project and its environment.

2.4.2 Themes of the framework

The framework provides seven themes that project managers must be cognisant of, and constantly monitor throughout the duration of the project. These seven themes direct the project manager's attention to the active monitoring of: change and progress, project risks, project plans, project quality, the organisation and the business case.

2.4.2.1 Processes of the framework

There are seven processes within the PRINCE2 framework. These are:

1. Starting the project
2. Directing the project
3. Initiating the project
4. Controlling stages of the project
5. Managing project delivery
6. Managing stage boundaries
7. Closing the project

The details of the processes are explicated below (see Table 1):

Table 1: Seven processes of the framework

Process	**Description**
Starting the project	The objective of this process is to ensure that the business case is properly drafted, and that a project manager has been appointed
Directing the project	Following the above, the project board

	should initiate the project. The project manager should then develop strategies for managing risk, quality, communication and configuration. The project should also update the business case and develop the project plan
Initiating the project	The above activities are then executed by the project manager
Controlling stages of the project	Within this stage the project manager assigns tasks to different actors, monitors work and solves problems and issues as they arise
Managing project delivery	Teams who have been appointed to deliver work accept their tasks and undertake them
Managing stage boundaries	Within this stage the project board receives updates and monitors the progress of work
Closing the project	Within this stage the objective is to verify that the final product has been completed to the correct quality and then deliver this to the recipient

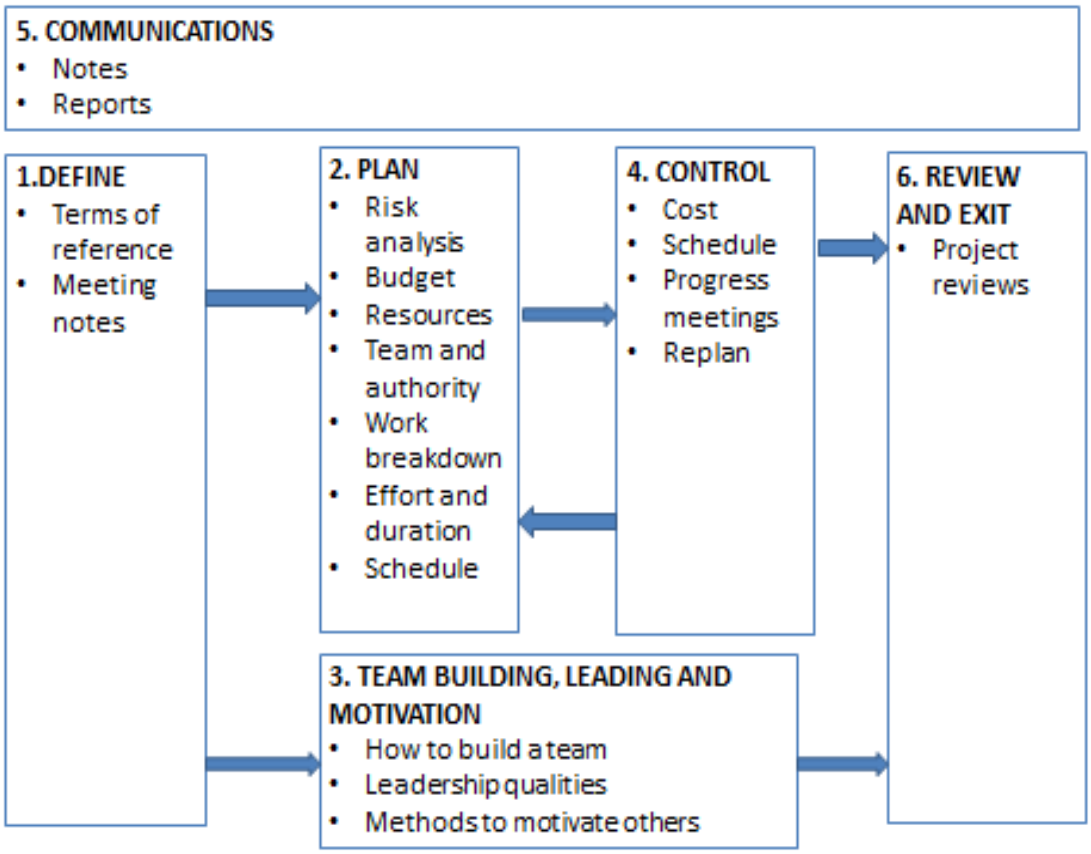
Source: Adapted from Tomanek, Cermak and Smutny (2015, p. 551)

The use of the PRINCE2 framework has been found to be successful in multiple national and organisational contexts (Edmonds, 2010; Tomanek, Cermak and Smutny, 2015). Although it might be argued that the framework is conceptually complex, it can be taught in a flexible manner, and those undergoing such training report that the process increases their confidence, can be rewarding and even fun (Edmonds, 2010).

2.5 Models of Project Management

The different stages involved in developing and implementing projects is highlighted in Figure 1.

Figure 2.1: Elbeik and Thomas six-stage project management model



Source: Elbeik and Thomas (1998, P. 14)

Tukel and Rom (2001) provide a check list of criteria that need to be met for effective project implementation. These criteria are aimed at meeting the expectations of customers and other stakeholders, thus ensuring the time, cost and technical focus of the project (See Table 1).

Tukel and Rom (2001) criteria for project success is highlighted in Table 2

Table 2.2: Success criteria in project management practice

	Strong emphasis	Weak emphasis
Customer-focus		
Fully satisfying the customer's needs takes precedence over other		
Objectives		
Measuring overall customer satisfaction		
Making prompt responses to customer requests		
Taking corrective action to meet customer requirements		
Other stakeholder-focus		
Providing development opportunities for project team members		
Providing organization learning		
Fully satisfying stakeholders' needs (other than the customer) taking		

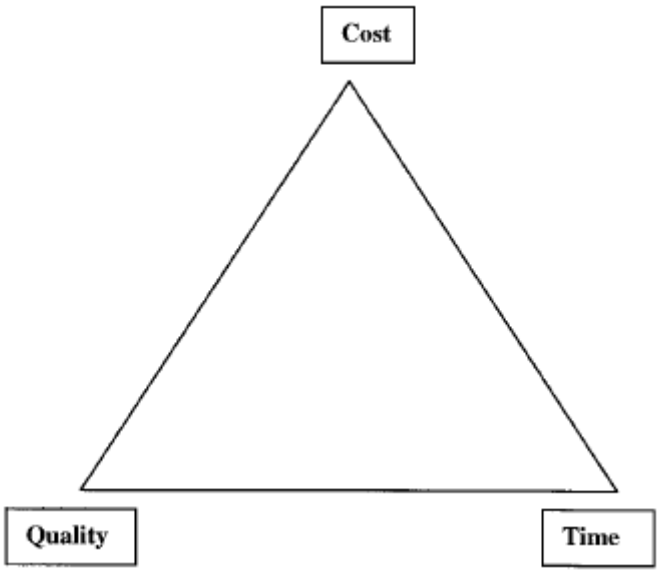
precedence over other objectives		
Measuring overall stakeholder (other than the customer) satisfaction		
Time-focus		
Evaluating suppliers/subcontractors based on how well they meet		
Schedules		
Making additional resources available to meet project milestones and		
Deadlines		
Taking corrective action to control progress against the project		
Schedule		
Minimizing the project duration precedence over other objectives		
Cost-focus		
Taking corrective action to control project costs		
Relaxing deadlines to fully meet costs		
Evaluating suppliers/subcontractors based on how well they meet		
the agreed budget		
Minimizing the project cost taking precedence over other objectives		
Technical-focus		

Evaluating suppliers/subcontractors based on how well they meet		
technical specifications		
Taking corrective action to control conformance to technical		
Requirements		
Relaxing other constraints to meet technical specifications		
Meeting the technical specification precedence over other objectives		

Source: Adapted from Tukel and Rom (2001: 406)

Atkinson (1999) proposes the iron triangle (Figure 2) which highlights the three critical features of cost, quality and time which, together, play a crucial role in assisting projects to achieve success.

Figure 2.2: The Iron Triangle



Source: Atkinson (1999, P. 338)

2.6 IT Healthcare Projects

Healthcare has become increasingly reliant, in recent decades, on the use IT in the delivery of its service. Chief among its uses in healthcare are diagnosis, improved outcomes, the reduction of errors in medication, greater efficiency, lowering of costs and the creation of electronic health records (Altuwaijri, 2008). Originally, IT was used in hospital administration and finance but has now expanded to include a more clinical role. This more clinical role for IT within healthcare was recently incentivised in the US when the American Recovery and Reinvestment Act (ARRA) was passed in 2009. This act made substantial financial grants to providers of healthcare who could demonstrate “meaningful use” of electronic health records which could facilitate the efficient sharing of clinical information both within and across healthcare institutions to enhance public health, patient care and reporting (Korst et al., 2011). This US venture has stimulated interest in the benefits to be derived from the implementation of similar IT solutions within healthcare in many other countries.

Utilisation of IT within the Saudi healthcare sector has been increasing in recent years, although there are wide variations across the sector. Nevertheless, this development is still at an early stage.

Altuwaijri emphasises the importance of promoting IT solutions for healthcare in Saudi Arabia (Altuwaijri, 2010). The author outlines a number of reasons specific to the Saudi context. Firstly, most hospitals and health centres still rely on maintaining paper records of patient information. Apart from ecological considerations, paper records can easily be lost or misfiled and transferring of these records between institutions can be costly and time consuming. Also, the

amount of information is steadily increasing. Furthermore, different health providers use different systems and these are often difficult to interconnect. Finally, in many cases, the information is more institution oriented rather than being patient-centred.

Altuwaijri also points out that Saudi Arabia has one of the highest population growth rates in the world and this makes the implementation of successful IT solutions to healthcare all the more urgent. Its population is projected to grow by 20% rising from 23 million to 30 million by 2016 (Booz et al., 2007, p. 3). This report also comments on a developing ageing population by 2020 and how growing affluence in Saudi Arabia is also expected to bring with it various health problems.

The Standish Group, in 2009, conducted research into IT projects and found that many of such projects failed (The Standish Group International, 2009). This study found that only 32% actually delivered on time, within budget and produced the required features – three of the key success factors highlighted in(Van Der Westhuizen and Fitzgerald, 2005) which was referred to earlier in the literature review. The study reported that 44% partially failed and 24% were total failures and were abandoned. These figures referred to private projects. More alarming are the figures thy present for the public sector where the failure rate was as high as 84%. Root causes of failure included the lack of efficient project management, poor understanding of the technology being employed and its limitations and poorly understood methods for the correct matching of the IT portfolio to the vision and strategic planning of the organisation.

This latter point of the mismatch between the IT solution and the organisation's strategic plan is seen by (Papp, 2001) as one of the principal reasons for IT project failures. The proper alignment of the IT solution to the organisation's strategic plan can enable the organisation to derive maximum benefit from IT giving it a competetive advantage. Achieving this, however, calls for mutual understanding among the project management team and the organisation's management so that there is a shared vision of the objectives to be achieved (Yujie & Xindi, 2010). Because of the many different information systems required within healthcare, this alignment becomes of crucial importance as a success factor, yet this issue has not been sufficiently researched (Bush M, et al. 2009).

Al_Khalil and Al-Ghafly (1999) examined projects in Saudi Arabia which had serious time overruns and found that lack of clear lines of responsibility in planning resulted in both contractors and project owners blaming each other.

Abdulaziz and Mayhew (2013) investigated a number of IT projects in an attempt to identify CSFs. The authors' main concern was the continuing low success rate of such projects in Saudi Arabia, in particular. Following a literature search of IT projects globally, they found that there was no unanimity among the authors as to the significant CSFs. Through a mixed methods approach they identified a number of CSFs which they considered to be significant and relevant in the Saudi context. This resulted in an IT project framework, most useful in the context of the current study, which was based on eight propositions as presented in Table 2

Table 2.2 Eight propositions for IT Project Success

P1	Top Management Support and Commitment increases the level of IT projects success
P2	Strategic Planning Increases the level of IT projects success
P3	Project Management increases the level of IT projects success
P4	Project Team competency Increases the level of IT projects success
P5	Communication Management Increases the level of IT projects success
P6	Training and Education Increases the level of IT projects success
P7	Partners and Suppliers Management Increases the level of IT projects success
P8	Stakeholders Management Increases the level of IT projects success

A study of 52 MIS systems within the context of healthcare identified lack of clarity of scope of the project, inadequate risk assessments, confusion regarding the roles of stakeholders and serious errors of communication as the main root causal factors contributing to project failure Abouzahra (2011). They recommended that special attention needed to be given to these failure factors in the project planning stage Attention neede to be paid to the complexity of the system especially in terms of alignment with existing systems, not only in defining the scope of the project but, also in communicating this information

clearly. Risks in alignment of the project with existing systems needed to be identified at an early stage of the project planning. Additionally, the author stressed the importance of clearly identifying the project stakeholders and this included knowledge of suppliers. Effective systems of communication needed to be embedded in the early planning of the project to ensure that important information was conveyed to the relevant persons in timely fashion. The author concluded that:

> "the project team must take the nature of healthcare environment and its complexity into consideration while managing the project and must modify different project processes to deal with this environment." ibid., (p. 49).

Abouzahra's (2011) emphasis on the importance of alignment for healthcare IT projects can be seen especially in the implementation of an Electronic Health Record (EHR) system. Thisneeds to be aligned to a number of requirements within a healthcare setting. It should be capable of maintaining and updating a patient's medical history and be accessible for authorised users within the same healthcare system or within another healthcare system. Primary functions include the direct care and treatment of the patient. Additionally, it should support secondary systems such as legal matters, statistical analysis, research, training modules and quality control. It should also have the normally expected functionalities of email, messaging and video conferencing.

With regard to patient care, this should contain four main identities as outlined in (Bernstein, et al. 2005):

- Patient Diagnosis

- Projected Goals
- Interventions Schedule
- Results

Since patient medical history is likely to be longitudinal, eventually encompassing a whole lifetime of medical care, these systems will require the capacity to store masses of information. This information must be managed within the system so that relevant data can be sorted easily and quickly from the rest of the information (Tang, 2003). The EHR system will need to have core activities as well as supportive functions.

The system should also have the capacity to generate reports that are both coherent and cohesive. The system will need to be robust enough to permit round the clock access. There must also be strict rules governing authorisation of access in compliance with Data Protection Laws and a traceability function for recording times and personnel accessing the record (Suomi, 2006). One strength of the system commented on by (Ammenwerth, E. et al. 2003) is that patient care using the EHR system will be much more evidence-based and efficient.

A useful account of the basic structure of an EHR system is given by (Dicksen, et al. 2004). This clearly shows the two main functionalities of direct patient care and supportive systems. The direct care function should enable clinical decisions to be made and should have a built in alert for known allergies to certain medication stored in the patient's history (Vesely et al. 2006). The direct care function should have the capacity for the creation, storage and retrieval of

records, pop up reminders, support for clinical decision making and additional facilities for communication and management operations.

Alongside the direct care functions there should be supportive functions for finamcial matters, administrative functions, a research system which permits a question and answer facility, statistics and also a patient portal (Dicksen, et al., 2004).

This general overview of an EHR system reveals its complexity. Research suggests that end users of the system typically do not exploit its full potential. For example, (Laerum et al., 2004) found that doctors were generally only using 2 out of 7 tasks that the system is capable of executing. In some cases, the system was merely used to read the patient's data.

2.7 Issues of Privacy, Confidentiality and Security

A number of reasons will be presented here for considering issues of privacy, confidentiality and security as important for the planning and implementation of IT solutions within healthcare and, particularly, the maintenance of an Electronic Health Record (EHR). Chief among these is the patient's feelings about the storage of their medical history and other personal data. An EHR has many benefits for patients including thereduction in delays and the the minimisation of clinical errors, both of which can result in saving lives.Despite such benefits, Peel (2010) has shown how patients' fears about the privacy of their sensitive personal data can result in their being reluctant to disclose such information which may often be of crucial importance. For example, patients were often hesitantabout disclosing mental health issues such as depression, alcohol or

drug dependency and sexual activities in which their health may have been compromised (ibid.). In fact, Peel (2010)reported the findings of a survey conducted by the Harvard School of Public Health wher only 59% of patients felt confident that their personal data stored in an EHR would be maintained with privacy and confidentiality.

Thus, the effectiveness of IT solutions in healthcare is dependent on the patient's trust that what they disclose about themselves will be maintained with the highest degree of confidentiality and security. Admittedly, in the past when information was stored on paper-based documents, there was still an issue of disclosure of sensitive personal data. However, this was less problematic as patients were more willing to disclose such information to their own GP's in whom they placed great trust, whereas with electronic storage, there are fears that a great many users of the EHR storage system may have access to their personal data.

Laufer & Wolfe (1977) raise an issue which may be of particular importance in the Saudi context. This issue is what they refer to as 'situationality' which considers the effect of interactions between the patient and their particular cultural values. In Saudi Arabia, EHR systems are viewed with great suspicion which makes many clients fearful of full and frank disclosure, even when such disclosure might have a direct bearing on diagnosis and treatment. Computerised systems are seen as alien to their culture and are regarded as Western intrusions into a more traditional lifestyle. Saudi patients often have a different self-understanding which is related to their place within their communities. This results in an understanding of life and its meaning and

interpersonal relationships which differ from Western understandings. For this reason, situationality is an important issue affecting the patient's willingness and openess towards disclosure of personal information which is of crucial importance for the successful implementation of an EHR system. Thus, culture and tradition "constitute boundaries of consciousness about privacy" (ibid. p. 28).

Consequently, the implementation of an effective EHR system raises issues of privacy and security.These twin concepts, although they are connected,are yet distinct. Johnston (2004) states that it is difficult to exactly define privacy as it is often deeply embedded in societal ideologies as well as in personal beliefs. Consequently, the literature is often at variance as to what exactly is considered as 'private'. For example, Johnston (op.cit.) emphasises individual autonomy while (Schoeman, 1984) views it as the mainly concerned with the right of the individual to restrict access to personal data only to selected individuals. Clarke (2006) emphasises the ownership of one's personal data and the choice that the individual has about who is to be trusted in sharing this personal information. These issues are not simply confioned to more traditional cultures as Western societies are also much more culturally diverse. However, privacy generally relates to the confidence that individuals have that their personal details will not be used in ways which are discriminatory and which may cause them personal disadvantage.

In terms of privacy in healthcare contexts, Horak (1999) asserts that it relates to the trust that individual patients have that their personal data will not be disclosed to any third party except those which have been implicitly approved

by them for such disclosure. This is a matter of particular concern for EHR systems, as there are genuine fears that personal information could accidentally or unintentionally fall into the hands of other agencies. Thus, the need for privacy presents a challenge to EHR programmers in terms of who has access to what information which is electronically stored in databases. This means that there is a need for network security alongside computer security Stallings (2003).While the latter is related to who can access information stored on a computer, the former related to the transfer of that data through networks. The importance of planning programmes for protecting access to both computers and networks has been emphasised by Margulis (2003)who draws attention to the need for project managers to be aware of the complexity of privacy and confidentiality and not simply to security.

Slonim, et al. (2005) have highlighted the real fears, reported by The Consumer Health Forum of Saudi Arabia, that many patients have that their privacy may be compromised by hackers as well as accidentally leaked by medical professionals who have authorised access.

Some solutions to this problem include the use of “watermarking” for of authentication (Bao, et al. 2005). Watermarking hides personal data and can only be removed once authentication has been verified. Bipolar multiple-number base is a means of concealing data during internet transfer.A full and in-depth treatment of security and confidentiality issues is provided byFarzandipour et al.(2009). They point out the need for clear policies and procedures to govern EHR implementation which should include file auditing and procedures to be

followed for the use of patients' data for research purposes by anonymising the data.

So important are these complex issues of privacy, confidentiality and security in EHR project planning that they may ultimately affect the final decision as to whether the electronic storge systems are finally adopted at all.

Since the focus of this study will be the IT project management within the healthcare system of the National Guard in Saudi Arabia, it is of significant interest to refer to the work of (Altuwaijri, 2011) on the successful implementation of an IT project within this sector in Saudi Arabia. Altuwaijri traces the implementation from its planning stages through to its successful completion. The National Guard Health Affairs (NGHA) provides medical care to all employees of the National Guard as well as to their family members. This authority was awarded the Joint Commission International Gold Seal in 2009 in recognition of this successful project implementation.

2.8 The National Guard Health Affairs (NGHA)

The NGHA comprises five hospitals and some sixty primary health care centres Throughout Saudi Arabia with provision for up to 3000 in-patient beds. It is estimated that it serves 60,000 in-patients and approximately 2.5 million out-patients annually. The importance of implementing an IT project to support the work of the NGHA was recognised in 1999 and strategic planning began in that year and was successfully implemented and completed 10 years later. At the Arab Health Conference in 2010, the NGHA received the prestigious Middle East Excellence Award for its electronic health records system.

Altuwaijri conducted a case study of this sector of Saudi Healthcare to determine what success factors could be identified from the project's inception and planning, through its implentation right through to its successful completion.

A key consideration in the planning stages of this project was the close alignment of the IT solution to the requirements of executive directors from the NGHA. A committee was set up for strategic planning which include key executive directors, directors of quality, communications, internal audit and the executive director of information systems. The committee was tasked with the creation of a strategic plan for the IT project, establishing priorities and creating a schedule for implementation, annual reporting and budget allocation, approval, justification and acquisition of the IT system and making recommendations for investment targets and budgeting.

Planning lasted for six months in 1999 and implementation began early in 2000. Following an affirmative review in 2005, the strategic plan was extended for a further 5 years.

A key issue was that of an effective alignment between the IT solution and the strategic plans and business initiatives of the NGHA. The importance of this alignment has already been commented on earlier in the literature review. The project was also supported and advised by an international IT expert company with a proven track record in successful IT project planning and implementation.

The IT Strategic Plan adopted was based on the Component Alignment Model (CAM) proposed by (Martin, et al., 1998) This consisted of seven components

which had all to be carefully aligned to ensure successful implementation. The seven components were: “external environment, emerging information technologies, mission, organisational infrastructure, IT infrastructure, business strategy and IT strategy” (Altuwaijri, op. cit. p.343)

Altuwaijri outlined three phases in implementation:

“1) Assessing the current NGHA environment within each of the CAM components. 2) Visioning the future NGHA environment within each of the CAM components, with an emphasis on the use of information technology.

3) Developing a plan to move toward the environment forecast by the vision.

The IT steering committee, which has assumed responsibility for the on-going governance of overall NGHA IT activities would review and revise this plan on an at least annual basis” (ibid p. 343).

The author then continued to show how meticulous attention was given to each of the seven components to ensure they were maintained in continuous alignment with each other. In particular, great efforts were made to ensure that budgetary targets were adhered to as well as achieving the various intermediary targets on schedule.

In conclusion, Altuwaijri focuses on ten key factors which he identified as of pivotal importance to the success of the project. The first of these was strategic planning which was management oriented rather than technology driven. The second factor involved facing the real risk of failure, which is very high in IT information systems projects. The third factor is the emergence of an IT role within healthcare itself which entailed the training of medical practioners in

information technology. Fouthly, the IT infrastructure needed to be constructed ensuring the correct levels of availability and redundancy. Next was the importance of project management and the avoidance of rushing this through. Hence the importance of a realistic and achievable time schedule. The sixth factor focused on the need for training of end users and how the training of 6,000 end users was accomplished using the “train the trainers” approach. The next factor was how system integration was achieved and a “many to one” scenario avoided. The next factor was the use of the full potential of the system for health analytics and Altuwaijri admits that exploiting the full potential of the system to this purpose still remains a challenge. The ninth factor concerns political stability impacts within the country which, for a 10 year project was difficult to forecast. One of these impacts meant that only three out of an originally planned 13 vendor staff actually travelled from the US. Finally, there were local unique requirements, for example the inclusion of out-patient provision in Saudi arabia which was not a requirement for the original American project on which it was based. (ibid. pp. 352 -353).

Altuwaijri, presents NGHA as a success story in the field of IT information systems implementation, a field which is notorious for costly project failure. As the Saudi government has invested billions of dollars into IT projects generally, he wishes to highlight the stages in the project planning and implementation so that lessons can be learned and key success factors highlighted. Of the 10 factors highlighted, all except one were successfully implemented within the time and budgetary targets. Only the health analytics factor missed its target and it is admitted that this is extremely difficult to implement. However this

factor was now being reviewed and addressed and was expected to be implemented in the near future.

Useful as the the case study is in highlighting success factors, the author is a little reticent in revealing the external IT consultants involved in the project. It appears that a company called QuadraMed provided IT consultancy to the project (uadramed.com, 2010) accessed 20.05.2013. QuadraMed is actually an affiliate of the Cleveland Clinic in the US. The prestigious award in Dubai won by the NGHA for their implementation of this EHR system was actually sponsored by the Cleveland Clinic. Nevertheless, this background information and possible connections should not detract from the excellence of the NGHA system as well as the success factors highlighted and their usefulness for other projects in the future. It should be noted that the Cleveland Clinic is among the top 4 rated healthcare providers and was actually rated first for cardiac care for 16 years in a row. The Saudi healthcare system was ranked 26 in the World Health Organization's ranking list for the year 2000 (http://en.wikipedia.org/wiki/World_Health_Organization_ranking_of_health_systems) placing it lower than most developed European countries. However, great controversy surrounds these rankings especially from American writers who are reacting to the low ranking of the US at 38, well below Saudi Arabia's ranking. An unconvincing argument against this low rating is made by the journalist John Stossel, who argues that if deaths due to accidents, homicides, poor diet and lack of exercise is factored out of the points system, the US would rise in the rankings. But would not other developed countries also similarly rise in the ratings and the results would probably be quite similar. Thus, Stossel's argument is somewhat facile.

A stronger argument against the low rating for the US is put forward by (Whitman, G. 2008 accessed at (cato.org, 2013). He argues that of the five criteria used in the rating, only two of them are valid indicators, namely health level and responsiveness. The other three criteria, health distribution, responsiveness distribution and financial fairness are attacked by Whitman on a number of grounds. He questions the objectivity of the measures used especially in the latter three criteria. He is highly critical of the underlying assumptions used especially in the last three criteria, adjudging them to be lacking in logical coherence and based on certain substantial uncertainties. For example, the randomness of the samples, as reported in the media, fail to mention the very high rate of uncertainty in the who samples which is as high as 80% (Murray.et al, accessed athttp://www.who.int/healthinfo/paper28.pdf. on 21.05.2013). He also notes that criteria such as health distribution and financial fairness are based on certain ideological beliefs that are not shared by all countries included in the WHO ranking scheme. Countries which have a more socialist underlying ideological belief would, therefore, rate higher in the rankings than countries whose economics were based on alternative ideologies rooted in their historical developments. For example, “To be precise, the FFmeasure uses the absolute value of the cubed difference, which means the value is always positive. Notice also that cubing puts an especially high weight on differences from the mean. Squaring differences is a much more common statistical approach to measuring dispersion. Cubing differences further reduces the scores of nations that rely less on government to finance medical care.” (Whitman, G. 2008, footnote 5 p.8). Thus, Whitman challenges the validity of these WHO rankings of 2000. It is worth noting that the WHO has not updated this ranking table since 2000.

Although the paucity of research into IT projects in Saudi Arabia has been previously noted in this literature review, there is one important study conducted by Alfaadel, et al, [Alfaadel, F. et al. (no date cited) accessed at fafaadel@sfda.gov.sa, awairdhi@ccis.imamu.edu.sa, m.zyoud@ju.edu.jo], which conducted a structured questionnaire to which 308 project managers responded as well as semi structured interviews with 8 project managers. The project managers were of various nationalities working in Saudi Arabia. Failure factors found in this study included organizational culture and conflict of interests, general instability and lack of clarity about the project's objectives and goals. The latter failure factor resonates with findings from studies based elsewhere.

However, the other failure factors appear to be specific to Saudi Arabia and will be borne in mind in the current research. Generally, though, the identified failure factors were not dissimilar to those found in other research already cited. One notable finding was that "top management support" was only rated 8th in order of importance, compared with much higher ratings for this issue in other similar studies which often rated this as the number one critical failure factor.

Of more interest, for the purposes of this current study, are the success factors which were identified. These were in rank order:

"• It is completed on time and to budget, with all features and functions as initially

specified

• The quality of the project management used is satisfactory

• It meets the needs of the project's stakeholders

• The project achieves its business goals and purpose

• The end product is used frequently (the degree and manner in which users utilize the capabilities of the end product)

• The system information quality is high (for example, management reports, web pages are accurate and understandable)

• The service support from IT department is satisfactory (responsiveness, and technical competency)" (Alfaadel, et al., op. cit. p. 80)

The top two success factors were:

"The success definition that has the highest percentage was "A project is successful if the project achieved its business goals and purpose" (having 92.21% of responses), followed by "A project is successful if it is completed on time and to budget, with all features and functions as initially specified" (88.31%)" (Alfaadel, et al. op. cit. p. 80).

These top two success factors resonate with what was found in studies conducted in other countries, previously cited. For example, findings from a study conducted by (Smith, 2008) emphasizes the fact that IT project failure is, in fact, the norm, and that such failure is less a function of technological issues than of issues relating to the people involved in the project: "technology has improved dramatically over the last 50 years. Incidences of critical bugs and other issues have decreased significantly relative to the quantity of code being run. Every IT project has technical challenges, but experience has proven that problems with technology are relatively simple to remedy compared to the challenges with people." (Smith, 2008)

Another Saudi based study emphasizes the importance of a leading role being played by the IT department in the organizational planning of the project (Yesser, 2007). However, in view of the findings of Alfaadel. et al. previously cited and other studies in different geographical contexts, it is a mistake to place the emphasis on the role of the IT project management. Smith (op. cit.) has noted that technological problems with IT projects have been largely confronted and resolved. Rather, the focus should be on the overall project management, management knowledge and experience, internal communications and clarity of objectives rather than on technological issues which have now been largely resolved. Furthermore, in the context of Saudi Arabia, Khudair (2008) provides evidence that while doctors and physicians favor the introduction of EHR's and IT solutions within healthcare for the storage and accessibility of accurate medical data, hospital administrators and managers were more cautious about such systems which tended to hinder their implementation.

2.9 Conclusion

Within the global economy, the utilization of IT solutions has become an imperative not just for large global corporations, but also for small businesses, charities and NGO's. The main reason for this is the competitive advantage that derives from having high speed broadband connection. All sectors of business experience this technological imperative. For example, in agriculture, the uses of electronic devices for monitoring and controlling crop growth in the fields or herds of dairy cows, will mean that those farmers who employ IT solutions to improve farming methods will have a distinct advantage over those who do not.

Nevertheless, the literature shows that IT project failure rates are notoriously high and that this failure characterizes larger, more complex and more costly projects. The potential benefits offered by IT solutions within medicine and healthcare are many. IT does not simply offer an Electronic Healthcare Record system for the storage and retrieval of patients' medical history. It also has a major role to play in diagnostics and the speed of accessing this information is obviously important in such cases as treatment of stroke victims where minutes are of crucial importance in terms of damage to the stroke victim's health or even survival. IT also offers more advantages in terms of medical training, financing of healthcare operations, medical research and statistics. For these reasons, effective strategic planning and implantation of IT solutions within healthcare are of crucial importance for the success of the system and the avoidance of costly project failures.

There is copious literature on IT projects worldwide especially within healthcare. Root causes of failure have seen a shift away from laying the blame on problems inherent in the technology itself to the various human agents involved. Although individual studies of IT project failure have their own idiosyncratic findings, there is a convergence of judgment that three crucial factors determine the outcome of IT projects. These concern clarity among project managers about the objectives and the desired functionality required, completing the project on schedule and adhering to the budget. The majority of IT failures involve one or more of these three factors. Apart from these three major factors, effective communications between managers and others emerged as important, as also did technical knowledge on the part of the project manager and the user-friendliness of the completed IT solution for the intended end user.

Chapter Three

The context of the research: The Kingdom of Saudi Arabia and the National Guard Health Affairs

3.1 Introduction

This chapter presents the context of the research by providing select background information that should yield a more in-depth understanding of the phenomenon under investigation. A brief description of the physical geographical features of Saudi Arabia is followed by reference to the importance of oil production to the state's economy, trade and commerce. A brief survey of the main historical phases of the state's development provides the basis for understanding its political power structure and economy. The healthcare system of Saudi Arabia is then presented as a prelude to introducing the National Guard Health Affairs (NGHA) which is the focus of this research.

This chapter is required in order to articulate the facticity of the research questions which cannot be adequately addressed without an appreciation of the context within which they have arisen.

3.2 The Kingdom of Saudi Arabia

This section presents the overall context of the case study by providing some information on the geography, history and demographics of Saudi Arabia. This is followed by an exposition of the political economy and Government policies against which IT developments in the NGHA can be understood and assessed.

3.2.1 Geography of Saudi Arabia

This section will provide an overview of the main geographical features of Saudi Arabia including its location and physical features, climatic conditions, its economical features, its principal regions and cities and population structure and distribution.

3.2.1.1 Location and Physical Features

The Kingdom of Saudi Arabia covers an area of some 2,250,000 square kilometres (868,700 square miles) which makes up around four fifths of the Arabian Peninsula and is similar in size to Western Europe. It is the largest Middle Eastern country and is located between the Arabian Gulf to the east and the Red Sea to the west. The kingdom shares borders with the United Arab Emirates, Qatar and Bahrain to the east, with Kuwait, Iraq and Jordan to the north and with Yemen and Oman to the south as shown in Figure 3.1:

Figure 3.1 Map of Saudi Arabia (mapsofworld.com 2013)

Over 95% of Saudi Arabian terrain is either desert or semi-desert. However, there are fertile regions along the Red Sea coast with mountains and forests in its south-western corner.

3.2.1.2 Climate

Almost the entire Kingdom is arid, although there is rainfall in the north and along the mountain range to the west, especially in the far southwest, which receives the monsoon rains in summer. Sporadic rain can also occur elsewhere, sometimes very heavily, causing serious flooding, including in Riyadh, where the air and prevailing winds tend usually to be very dry.

As a result of the general aridity and cloudless skies, temperatures can vary considerably from a mid-summer maximum of 50°C (122°F) in the shade to winter lows close to or below freezing in the mountainous areas and, sometimes, at night in the heart of the desert. Hail and snow may also be experienced in some parts of the country during the winter months. Humidity is a major feature of the coastal areas, although this is usually tempered by slightly lower and less variable temperatures and a steady breeze, especially in the east.

3.2.1.3 Trade and Oil Rentier Economy

Saudi Arabia has played a significant role in international trade for centuries because of its strategic location near the sea trade routes which were used to transport goods between India, China and Europe. A flourishing trade in incense, spices and myrrh (used in medicine and cosmetic balms) also existed between the ancient inhabitants of the Arabian Peninsula.

Oil was first discovered in Saudi Arabia in 1936, and by 1950 the country had become a major oil producer. The Kingdom has at least 25% of the world's known oil reserves and is the undisputed leader of the international oil industry. Its oil revenues have been used to diversify the economy, reclaiming land from the desert and establishing the infrastructure (roads, telephone systems, modern cities, hospitals and power stations) needed for further development. In December 2005 Saudi Arabia became the 149th member of the World Trade Organization, beginning the process of opening up its economy to the outside world.

3.2.1.4 Administrative Regions and Cities

Kingdom of Saudi Arabia includes 13 administrative regions, i.e. Provinces, and each province includes a number of governorates and centres. Riyadh is one of these regions and has 19 governorates and Riyadh City is the capital of Saudi Arabia. Riyadh Region is located in the centre of Saudi Arabia occupying 17% of the Kingdom's area and 22.63% of the Kingdom's population is based there. Riyadh's climate is hot and dry in summer, cold in winter.

Riyadh City

Riyadh is a growing capital that expands dynamically to accommodate various inhabitants. It is linked to other regions through a modern international airport. Riyadh is a great example of a modern city which improves services constantly while maintaining its cultural mark.

The capital occupies political, economic and cultural value since it was revived by King Abdulaziz Al-Saud – May Allah Have Mercy On Him – in the 15th of January 1902.

Makkah and Madinah City

Makkah and Madinah, Islam's two holiest cities, are located in Saudi Arabia. Makkah is the birthplace of the Prophet Muhammad and the focal point of Hajj, the Islamic pilgrimage in which almost two million Muslims from all parts of the world participate every year. Madinah is the city where Prophet Muhammad emigrated and lived. Riyadh, located in the central province, is the capital city of Saudi Arabia. It is also the high-tech center of modern Saudi Arabia and houses the headquarters of the Gulf Cooperation Council (GCC). Jeddah, located along the eastern coast of the Red Sea, is the commercial capital of Saudi Arabia, and serves as an entrance to the rest of the peninsula. Jeddah's ports hence become the main thoroughfares for trade.

Figure 3.2: Makkah and Madina the two Holy mosques in the Kingdom of Saudi Arabia

(Sources: www.aqarcity.com)

Other Cities

The twin cities of Jubail and Yanbu are a symbol of the government's vision of Saudi Arabia's future development. Jubail lies on the Arabian Gulf in the Eastern Province of the Kingdom. It is located 80 kilometres north of Dammam, and is an ancient center and caravan junction famous for pearling. It has the world's largest petrochemical complex. Yanbu is located on the East Coast of the Red Sea about 350 kilometres north-west of Jeddah. It houses the Directorate General of the Royal Commission for Jubail &Yanbu. It is a typical industrial fortress and a work of art in architectural engineering.

Distances between major cities are vast and this may have implications for IT project implementation, e.g. costs and time, to be borne in mind when answering the research questions.

3.2.2. History of Saudi Arabia

An outline of the development of Saudi Arabia over the last two centuries is set out below in seven different periods:

1. 18th and 19th centuries - Emirates and the rise of the Su'ud dynasty
2. 1902 – 1932 – The third Saudi State becomes established
3. 1932 – 1948 – Political policies prior to oil
4. 1948 – 1958 – The influence of oil revenues on the Saudi economy
5. 1958 – 1962 – Period of power struggle
6. 1962 – 1979 – The new polity of Faisal
7. 1979 – Present – New directions and reform of the economy

(adapted from Niblock(2006) pp. 21 – 46)

The development of the modern Saudi Kingdom began in the 18th century with the unification of the Arabian tribes by their steady acceptance of the hegemony of the House of Su'ud and the formation of a kingdom under its rule. An important factor in the emergence of this kingdom was the connection between the House of Su'ud and the religious movement within Islam known as Salafi..

This gradually led to the formation of a state based on the political power of the Su'ud dynasty mingled with the religious ideology of Islam. The tribal chieftains gradually submitted to House of Su'ud in a united kingdom which involved the inter-twining of two personages of power, ibnSu'ud and Muhammad ibn Abd al-Wahhab in 1744 Muhammad ibn Abd al-Wahhab was a religious reformer and Muhammad ibnSu'ud was the ruler of the tribal state of Diri'iyah in the Najd region. This brought into being "a system based on the interweaving of political and religious power which continues to characterise the Saudi Kingdom to present times" Niblock (2006 pp.23 -24).

The Kingdom of Saudi Arabia emerged through the conquest of the Emirate of Diri'iyah and the gradual acceptance by the conquered people. By 1773 the Najd region was fully under political control and had become the hub of Saudi power. Saudi power continued to expand to control the Eastern parts of the Saudi peninsula.

The third Saudi state came into being under the rule of Abd al-Aziz and which exists to the present day. Once more, the basis of this power lay in the intertwining of the Su'ud political power with the religious power of Islam (ibid, pp. 31-32).Thus, the hegemony of the Saudi government is established on the emergence of a strong ruling monarchy which became accepted by the different tribal regions by bestowing on their tribal rulers a certain status and role but under the overall rule of the House of Su'ud. The basis of Saudi rule was the Islam form of Salafism and the cooperation of the merchant classes in the government of the emerging state.

A complex picture emerges of Saudi Arabia by taking into account its political dynamics based on the sources of its hegemony and that of its King and his political ministers. Thus, Lipset's definition of legitimacy as "the capacity of the system to engender and maintain belief that the existing political institutions are the most appropriate ones for the society" (Lipset, 1960, p. 77) is a germane commentary on the sources and formation of the Kingdom of Saudi Arabia.

The Current Political Situation

Niblock presents a coherent analysis of the main sources of Saudi legitimacy:

1. Ideological Legitimacy – a political system enjoying popular acceptance by virtue of its articulation, promotion and defence of a particular belief-system based on Islam

2. Traditional Legitimacy – the acceptance of a ruler based on inheritance of the right to rule i.e. the Al Su'ud dynasty – also based on a process of tribal unification

3. Eudemonic Legitimacy – the delivery of the policies, welfare and performance sought by the population

4. Democratic/structural Legitimacy – the right to rule which underpins most liberal democratic political systems – legitimacy based on the will of the majority (Niblock, 2006, pp. 9 – 13).

The major players in the Saudi political arena include the following groups:

1. The Royal Family – the Al Su'ud Dynasty
2. The Religious Constituency – The Ulama Religious leaders
3. The Tribal Constituency
4. The Najdi Constituency
5. The Merchant/Commercial Bourgeoise
6. The Administrative Elite
7. The External Constituency

This may have implications for the decision-making process in the Saudi context in terms of project planning and approval and this historical development is important for understanding the context of this research..

3.3 Demographics

The total population of Saudi Arabia according to the 2010 Census was 27,136,977: 18,707,576 Saudi nationals and 8,429,401 non-nationals (Saudi Gazette: Nov. 24, 2010). The median age in 2012 was 25 indicating a very young population (Murphy, Carlyle 2012), in contrast with the median age of the ageing UK population in 2012 which was 40 and projected to rise to over 42 by 2035(Office of National Statistics 2012). As well as being a young population, it is also experiencing rapid growth having increased to its 2010 level from 22.7 million in 2004, an increase of 19% in six years. This rapid rate of population growth has occurred over the last decade and this recent dramatic acceleration can be seen by comparison with the previous 5 year period from 1985 up to 2004 shown in Table 3.1

Table 3.1 Population Growth of Saudi Arabia 1999 - 2010

PERIOD	POPULATION GROWTH	GROWTH
1999 - 2004	21million to 22.7 million	8%
2004 - 2010	22.7 million to 27.1 million	19%

Compiled from Saudi Gazette Nov. 24, 2010

Such high growth rates in the KSA contrast with the general average growth rate of 2.4%, estimated across all Arab states.

It is important to note, however, that 27.1% of the Saudi population is non-Saudi by birth and represents 6 million people. These are most expatriate workers employed in education, hospitality, tourism and in industries. The largest number of expatriates is the Egyptian workforce which constitutes 16% of all expatriates. The remainder come from a wide variety of countries, the principal

ones being India, Yemen, Pakistan and the Philippines. The fact that over a quarter of the population is non-Saudi is a significant factor in this case study which will receive further attention later in this chapter.

3.3.1 The Monarchy and Government of Saudi Arabia

In August, 2005, Abdullah bin Abdul Aziz, formerly Crown Prince, became the sixth King of Saudi Arabia, Custodian of the Two Holy Mosques and Prime Minister. He remained head of the Kingdom's National Guard which he has commanded since 1962. Born in Riyadh in 1924, he was given a formal religious education.

Throughout his long public life, HRH Crown Prince Abdullah has exerted a major influence on both the domestic and foreign policy of the Kingdom. King Abdullah has added to his early education at the royal court with extensive reading of history, politics and social affairs. His years spent with the bedouin in the desert reinforced in him the traditional Bedouin values of honor, generosity, simplicity and courage.

From the early years of his manhood, he has been closely involved in events inside the Kingdom, invaluable experience not only for dealing with the internal affairs of the Kingdom but also for the role he has played on the wider stage of international affairs.

He has visited most of the Kingdom's allies and has used his good offices to mediate in negotiations between other Arab states.

The appointment in 1962 of the then Crown Prince Abdullah as head of the National Guard (formed originally from the descendants of those who fought alongside King Abdul Aziz (Ibn Saud) to consolidate the Kingdom) was particularly appropriate in view of his intimate knowledge of the tribes of the Kingdom and his love of the desert and its traditions.

Since his appointment, the King has transformed the National Guard into not only an effective modern military force but also a unique social and cultural institution. He has played a particularly noteworthy role in preserving and celebrating the cultural heritage of the Kingdom.

A major element in the preservation of the Kingdom's heritage is the annual National Heritage and Cultural Festival, inaugurated in 1985, and held in Jenadriyah. With the King as its patron, the Festival which includes folksong, dance and literary events, attracts visitors from all over the Kingdom of Saudi Arabia.

As Crown Prince, Abdullah was appointed Second Deputy Prime Minister in 1975 on the succession of King Khalid and, when King Fahd succeeded to the throne in 1982, was named Crown Prince and Deputy Prime Minister. In his capacity as First Deputy Prime Minister, Crown Prince Abdullah presided over cabinet meetings in the absence of the King.

In August, 2005, he became King on the death of King Fahd.

Today the government of the Custodian of the two Holy Mosques strives to create a balance between the welfare of the Saudi citizen and the comprehensive development of the country. The infrastructure was completed, the road network, the 27 airports, 3 of them international in Riyadh, Jeddah and Dammam, amongst the best in the world. As well as 174 imports/export wharves at the country's ports on the eastern and western coasts. In Industrial development, the industrial cities of Jubail and Yanbu are among the world, most advanced industrial cities. The Kingdom is also one of the top producers and exporters of a diverse array of petro-chemicals. Government supportive role has contributed to exporting non-oil quality goods into more than 48 countries. The Kingdom development paid great dividends and the Kingdom attained self-sufficiency in many agricultural crops like wheat and dates and is ranked 6th amongst the wheat producing countries and 1st in dates production. The state encourages investment, creating opportunities and offering incentives to investors. Saudi Arabian General Investment Authority (SAGIA), shoulders the responsibility of putting this vision into a reality by providing comprehensive services to investors, fostering investment opportunities and merging with international investment markets.

3.3.2 Political Economy of Saudi Arabia

This section examines the complex political economy of Saudi Arabia and explores some issues which impact on its ability to modernize and become more competitive in a global market.

3.3.2.1 A stable economy

Currently, the economy of Saudi Arabia is considered to be one of the most stable in the world as a result of its efficient and sustainable use of its natural resources, particularly its oil reserves. According to Al-darrab, Gulzar and Ali (2013), Saudi Arabia has pursued a program of aggressive reforms to become one of the top ten competitive economies. Similarly, as agreed by Mohammad and Ahmad (2012),the abundance of oil and the strategic location of the country can be seen in the sustainable growth of the Saudi economy. The Saudi government is attempting to promote industry, business ventures and commerce by its citizens. Given that employee remuneration from reliance on oil is easily obtainable, the scarcity of low wage employees in an economic climate of developing world countries is notable, particularly as most businesses operate in the capital (Rice, 2004; Danish, 2012). Likewise, Niblock (2006) provided evidence that wage rates grew for non-Saudi labourers and other economies from 320.000 Riyals, (approximately£52,600 Pounds Sterling, in 1970, to five and six million Riyals in 2003, (approximately £990,000 Pounds Sterling). However, industrial investment in the Kingdom is significant and was estimated to be 450 billion Riyals in 2013 and 5400 manufacturers between companies already producing goods and others under construction (Hamri, 2014). Despite high levels of remuneration by comparison with other countries, some industries were still confronted by problems and issues related to implementing innovations.

3.3.2.2 The developing role of women in the Saudi economy

The low rate of participation of Saudi women in the labour force is a characteristic of Saudi economy which is currently receiving attention as it is

much lower than levels in many other countries (Nader &Hamdan, 2010). This problem is related to modern business thinking in Saudi Arabia.

However, it is important to realize that Saudi society is complex and conservative. Its codes of behaviour are based on traditions of a male-dominated paradigm and some misunderstandings of Islamic protocol (AlMunajjed, 2010; Al Lily, 2011). Ahmad (2011) has offered a closer look at the position of Saudi women as a result of family control and socio-cultural norms in many areas of Saudi society. Traditionally, women were seen as economically dependent on men and their independence and mobility is significantly restricted. Women were not allowed to leave the family home unless accompanied by a male relative.

The reasons underlying the disadvantaged position of women in not having access to the same opportunities as men are often basedonideas related to their responsibilities and family roles (OECD 2004).Traditional domestic arrangements in the KSA have shaped women's roles in terms of domestic responsibilities such as child nurturing and motherhood. This remains quite common at present (Ahmad, 2011 & Sabbagh, 1996).

Outlooks are changing in the KSA, with female employees taking up much more responsibility in both private and public enterprises. However, change is slowly happening and women are increasingly being viewed in a more positive light (Hamdan, 2005; Danish, 2012; Ahmad, 2011). In fact, women in the KSA are considered as wasted resources and untapped wealth (Orser et al., 2012)and

change slowly taking place in all locations of work undertaken by female employees (English, 2013).

3.3.2.3 The Political Economy of Saudi Arabia

Niblock (2007) provides a useful outline of the political and economic development of Saudi Arabia in which he divides its modern evolution into four phases as shown in Table 3.2:

Table. 3.2 The phases of the modern development of Saudi Arabia

Period		Description of Development	Features
1962 1970	-	Laying the basis for Development	Central Planning Office established
1970 1885	-	Planning for Transformation	Three 5 year development plans
1985 2000	-	Constrained Development	Reductions in grants and subsidies
2000 2006	-	Planning for Reform	Privatisation

Adapted from Niblock (2007)

While the final period of this phase is of primary relevance for this research, it will be helpful to briefly summarise the three earlier phases before focusing in more depth on the final phase

1962 – 1970 Laying the basis for Development

Prior to the development of the oil industry, the livelihood of the Saudi population was mainly dependent on farming and trade Knauerhase (1975) and Azzam (1993).The period commencing in 1962 witnessed the centralization of power under Prince/King Faisal and was characterized by a state-led policy for development in which the legal, administrative and planning structures were created. Revenues from oil accelerated this process and there was a drive towards greater efficiency in the use of resources. A ten point plan for development was put in place similar to that of many developing countries although it was not clearly formalized Niblock (2007, p. 41). A Central Planning Office was founded in 1965 and this did publish reports at various times and devised a five year plan to oversee development and to ensure that it adhered to budgetary constraints Al-Farsy (1989, p. 142).

During this period some development of physical infrastructure took place as well as certain social developments. These developments saw the emergence of a small but politically aware working class. It consisted mainly of Shiite workers who were employed in the oil industry in the Eastern province. Industrial development in this period was mainly oil-related Niblock (2007 p. 51).

Niblock (op. cit.) sees this period as one of transition in which the economy began to develop along new lines. However, new developments were hampered by a scarcity of trained personnel. This resulted in greater reliance on foreign workers which was estimated at 240,000 out of a total workforce of 1,006,000 in 1966/7 which increased to 500,000 by 1970 Birks and Sinclair (1980, pp. 94-95)

1970 – 1985 Planning for Transformation.

This period was marked by a significant development of the economy as the country gained more and more control over the benefits of oil production, the establishment of hydrocarbon-based industries and energy generating plants based on petrochemical bi-products. Despite this industrial development, agriculture also developed with the implementation of irrigation programmes. These developments were mostly state-led. Nevertheless, there were other private players in the transformation of the Saudi economy. As oil revenues were high during this period, people generally had confidence in the government which made use of increased oil revenues in order to fund developments. Actually, between 1969 and 1972, oil revenues almost doubled. Following the Tehran Agreement in 1970 many oil producing countries gained more power within OPEC in fixing global oil prices and after 1973, development greatly increased due to increased oil revenues.

In this period, there were three five year development plans: 1970 – 1975, 1975 – 1980 and 1980 – 1985. The period 1970 – 1975 was marked by a cautious approach to development as government finances began to improve following two years in which it showed a budget deficit. In the second five year period, the government was more adventurous and tried to plan for a future when its oil reserves were expected to decline. The idea was to reduce and aimed at becoming more economically self-sufficient in preparation for the eventual depletion of oil reserves and revenue:

> “Investments are to be made in industrial ventures based on natural gas and mineral resources, individual and joint investment in other industries will be encouraged with special incentives; and agricultural production

will be stimulated through government research extension activities, credit and input subsidies and expansion of productive land."

Kingdom of Saudi Arabia, Ministry of Planning (KSA-MOP) (1975, p. 58).

The Third Development Plan, 1980 – 1985, injected a note of urgency about the need for a sharper focus on development, was critical of the Second Plan and, for the first time in a development plan, stresses the need to become less reliant on foreign workers:

"The strategies of the First and Second emphasized high growth rates in all sectors, and as a corollary, the relatively free import of foreign labour. The Third Plan emphasizes high growth more selectively and aims to consolidate rather than expand the foreign labour force. This reduced emphasis on all-round growth constitutes the most important element in the series of structural changes intended for the Third Plan period"

Kingdom of Saudi Arabia,, Ministry of Planning (KSA-MOP) (1980)

The emphasis on reducing dependency on foreign labour was to be repeated in subsequent development plans.

The machinery of government became increasingly bureaucratic and ponderous. Hertog likened the operations of cumbersome and unmanageable government departments to the activities of fiefdoms where individual ministers acted as overlords (Hertog, 2006, pp. 93 – 103). Even minor decisions by civil servants required ministerial approval. This sometimes resulted in conflicting and contradictory policies being followed which led to a lack of coherence and time-wasting in implementing policies Niblock (2007, p. 67).

A degree of nationalization occurred in this period, although the term ‘participation’ was felt to be more appropriate. In 1972, the government gained a 25% stake in ARAMCO which, in 1974, increased to 60%. This gave the government greater control over pricing and production levels.

In this period, the government also became stakeholders in electricity production by consolidation smaller electric companies that had previously been in the private sector. The justification for this was their delay in reaching agreement for standardized voltage and frequency which was considered essential for the economy to develop Soufi and Mayer (1991, p.11). This has meant that development was focused more on government control through becoming majority stakeholders. However, the private sector played a significant role in the provision of consumer goods as well as in the development of agriculture.

Whilst in the earlier stages of this period there had been great confidence in the government, when oil revenues declined towards the end of this period, so also, confidence in the state began to decline Niblock (2007, pp. 92-93)

1985 – 2000 Constrained Development

Although oil revenues declined in this period, the government still adhered to its earlier plans for diversification in the economy. Saudi Arabia was still an oil rentier state, however, and oil revenues enabled the government to continue along the same policy lines as before. This meant that existing restrictive framework persisted.

There was rising unemployment, especially among younger workers and yet, the numbers of foreign workers in the state continued to rise. By 1995, the government had to reduce subsidies on petrol in the home market as well as for water, electricity and telephone services. Grants to farmers were also cut Malik, (1999, p. 132). The government began to be pressured from two angles: firstly the threat of civil unrest as social inequality increased and, secondly, the growing interests of the business elite in asserting themselves through the collective interests of the business community Niblock (2007, p. 142)

2000 – 2006 Planning for Reform

There was a significant policy shift from 2000 onwards which involved the government in framing the vision for the future, investment and management was to come from the private sector. With the financial crisis of the late 1990s, oil revenues had dropped significantly. New policies and regulations in the 2000 Plan were being implemented by 2002, even though one of the main drivers of this reform had ceased as the crisis had passed and oil prices had begun to recover. Oil prices were as low as $10 per barrel in 1996, but had risen to $25 per barrel by 2001/2002, $60 per barrel by 2005 and even touched $80 in 2006 Niblock (2007, pp. 175 – 176). Oil prices recently rose to $100 per barrel in the Summer of 2014 but by November 2014 were slightly below $80 per barrel.

However, despite the recovery in oil revenues, the reforms went ahead even more rapidly than would be expected. One explanation for this paradoxical situation is that implementation of policy changes is still rather slow in Saudi Arabia, so that policies are being implemented two or three years later than the events which triggered them in the first place. Niblock considers this delay as a

“a process of gestation” (ibid. p. 176) where it takes time for the interested parties to reach a consensus. These parties include the ruling royal family, senior civil servants, and leading members from the private sector. Economic changes such as privatization had been planned in the late 1990s in the midst of a recession but were not implemented for 3 years or more once consensus had been reached. By that time, the economy had recovered as oil revenues increased.

A second explanation is that such reforms reflected the global economic philosophy of the times often referred to as the ‘Washington Consensus’ (ibid. p. 177) that state control had negative effects on the economy whereas privatization freed up markets and positively affected the economy.

A third explanation was the growing unrest among sectors of society, especially the growing numbers of young people leaving colleges and unable to find employment.

A fourth explanation relates to international pressure post 9/11 based on the judgment that social conditions in Saudi Arabia were fuelling international terrorism. Radical Islam has been considered by Fukuyama as actually a bi-product of modernization (Fukuyama, 2006) . The change towards modernity often resulted in a sense of alienation and a loss of identity among young Muslims in developing Middle Eastern countries to search for an identity through radical interpretations of Islam. In support of this view, Fukuyama cites the case of Mohammed Atta, who was responsible for planning the 9/11 terrorist attacks was radicalized, not in Saudi Arabia, but in democratic Europe. Similarly, the London 7/7 bombers had been radicalized in Britain. Fukuyama

concludes “more democracy will mean more alienation, radicalization and – yes, unfortunately – terrorism” (ibid). Fukuyama’s views appear to be borne out by recent analyses of the phenomenon of young Western Muslims travelling to join ISIS, for example:

. “Social and perceived discrimination” is the reason why young people from Europe are going overseas to join dangerous extremist groups like the Islamic State of Iraq and Syria (ISIS)," a Europe-based researcher told Anadolu Agency, claiming that many foreign fighters are motivated by grievances over assimilation and acceptance combined with a “literalist” dogmatic thought process, rather than ideological concerns.”

(Anadolu, 2014)

Thus, there was justification on counterterrorist grounds for the Saudi government to proceed with economic reforms.

The seventh development plan (KSA-MOP 2000 - 2004) departed from previous plans by setting it within a longer term framework for where Saudi Arabia might be by 2020 – a strategy which if adhered to would result in achieving its goals and aspirations for becoming the type of society and economy that was envisioned by the year 2020. The key points covered in this strategy were:

- The Saudi population was projected to reach 29.7 million by 2020, with a labour force of 8.26 million. This would have an impact on services such as hospitals, schools, water and electricity supply
- Economic development was to be focused mainly on three sectors: petrochemicals, other energy-intensive industries and technologies which were capital intensive.

- Development of human resources through training and education mainly in science and technology
- Impact of environmental policies globally and its impact on the oil industry
- New sources of revenue through diversification and taxation
- Management of water to meet growing agricultural, industrial and domestic demand
- Reduce the gap between Saudi Arabia and developed countries by a greater emphasis on science, technology and informatics

  Adapted from Niblock (2007, p. 181 – 182)

3.4 Healthcare in Saudi Arabia

Primary, secondary and tertiary healthcare facilities in both the private and public sectors are available across Saudi Arabia. Hospitals and clinics are staffed by well qualified and experienced doctors and specialists from many countries and are also well provided with the latest equipment and laboratories. Prescription drugs and other medicines are also widely available at pharmacies. Immunization against TB, polio, hepatitis and tetanus is available free of charge. And there are also reasonably priced medical insurance plans.

During the time of the annual Hajj (pilgrimage), millions of pilgrims come from all parts of the world and a special team of doctors, nurses and other medical staff numbering some 11,350. In addition, the services of the Saudi Red Crescent Society are available to pilgrims.

Public health and fighting disease have been key government priorities for the Saudi state since its modern origins under the rule of King Abdul Aziz. The creation of the Kingdom's healthcare system in 1929 coincided with King Abdul Aziz's takeover of Al Hijaz and his designation of Mecca as the first Saudi capital. The government of King Abdul Aziz formulated a policy for healthcare provision drawing on limited resources to provide a healthcare system to cover all regions of the Kingdom. The aim was to keep abreast of modern healthcare provision through international exchange and cooperation. The Public Health and Ambulance (PHA) service was established to meet the needs of the Kingdom's health and environmental sectors. The PHA built hospitals and health centers across the Kingdom and issued and enforced regulations to guarantee adequate standards for the practicing of medicine and pharmacology. This was the forerunner of the Ministry of Health which was founded in 1950 and whose early vision was the establishment of a comprehensive modern national healthcare system to serve all geographical areas of the Kingdom. (Ministry of Health Portal KSA)

Vision

The Ministry of Health's vision is the delivery of the highest quality, integrated and comprehensive healthcare service.

Mission

The Ministry is committed to the mission assigned to it since its first coming into being; i.e. the provision of healthcare at all levels, promotion of general health and prevention of diseases, in addition to developing the laws and legislations regulating both the governmental and private health sectors. Aside from that,

MOH is accountable for performance monitoring in health institutions, along with the research activity and academic training in the field of health investment.

Values

The Ministry's values include:

- Patient first
- Justice
- Professionalism
- Quality
- Honesty and transparency
- Teamwork
- Initiative and productivity
- Societal involvement

Strategic Plan

The Ministry of Health's Strategy for the next ten years (2010 - 2019) is coherent and consistent with the healthcare strategy in the Kingdom, ratified by the Council of Ministers' resolution No. (320), dated 17/9/1430, corresponding to 7/9/2009. Since the beginning of development plans in the Kingdom of Saudi Arabia, 40 years ago, the improvement of healthcare services provided to the Saudi citizens was a strategic option adopted by the Leadership and enshrined in Article 31 of The Basic Law of Saudi Arabia, "the State shall protect public health and provide healthcare to every citizen". In addition, this was also included in the Eighth Development Plan, (KSA-MOP, 2005) consisting of one concept; providing healthcare that meets the needs of the population in all parts of the Kingdom.

The Ministry has set this strategy, taking into consideration all the elements that would achieve the future vision in line with the development accomplished in health services sectors around the world. In addition, the strategy is consistent with the roles played by the Ministry; the assigned authority to provide health services to the citizens, in addition to its responsibility of oversight and supervision of private sector facilities, as well as the development of legislation, rules and regulations for the provision of healthcare services to the citizens and residents of the Kingdom of Saudi Arabia.

This strategy comes in response to a series of major challenges facing the healthcare sector in various countries around the world, including Saudi Arabia. There is a huge new level of awareness among service recipients and their health education, in addition to a high level of expectations of better health services that can be accessed easily in accordance with high quality standards. The health sector is also witnessing many challenges worldwide, such as the high costs of health services resulting from the accelerating development of medical technologies in hardware, equipment tools and advanced and expensive medical technologies, as well as the unremitting discoveries of new expensive drugs.

In addition, there are many other reasons for the rising demand for health care services, including the prevalence of chronic diseases, the diagnostic and therapeutic long term expensive care services, the increase of health awareness in the society, in addition to the increased demand for periodic check up, risk factors monitoring and early disease detection and so on.

Through the current strategic plan, the Ministry of Health has implemented modern methodologies in providing health care services that makes the health system completely devoted to patients, or, in other words, a patient-centered health care system aiming to meet patients' health needs in the right place at the right time. This covers everything starting from primary health care till specialized therapeutic services in a professional manner, preserving all patients' rights, such as the right to know about their condition, the right to know the different treatment options, the right to choose their physician, and the right to be always treated with care and respect. These aspects didn't get a lot of attention in the past, but they are now one of the strategy's main objectives. The Ministry of Health strategy has adopted the integrated and comprehensive health care approach as a method of providing services, and implemented it through the MOH's Integrated and Comprehensive National Healthcare Project.

The MOH strategy includes other important aspects, such as health insurance, and the programs dedicated to study the role of cooperative health insurance, and considering including new segments of the community in it. It also includes the need to conduct studies on MOH hospitals in the future in terms of privatization, the best management and operation practices, in accordance with the principles of economics, cost calculation, diversification of funding sources, and the optimal use of resources.

Nevertheless, huge health documents, articles, studies and research were used in preparing this strategy, in addition to numerous personal interviews and workshops, as well as the observations and suggestions filed to the Ministry from several bodies. (Ministry of Health Portal KSA)

3.5 The National Guard Health Affairs (NGHA)

The National Guard Health Affairs (NGHA) is a large healthcare organization in Saudi Arabia, which provides medical care to modern standards for all NGHA employees and their dependents. It consists of five main hospitals which are designated as medical cities, are located in Riyadh, Jeddah, Madinah, Dammam and Al Ahsa and these are organised into three regions: Central Region, Western Region and Eastern Region as shown in Table 3.3.

Table 3.3 Five main Hospitals by Region

Region	Medical Cities
Central Region	Riyadh
Western Region	Jeddah
	Madinah
Eastern Region	Al Ahsa
	Dammam

Compiled from http://ngha.med.sa

The location of these five medical cities is shown in Fig. 3.3.

Fig 3.3 The locations of the five main medical cities of the NGHA

(http://ngha.med.sa)

Each of these five main hospitals are designated as medical cities because they comprise various units and facilities closely associated with the running of the hospitals. These may include a university for health science and research, accommodation, supplies, restaurants, banks, car rentals etc.

The five main medical cities are shown in Figs. 3.4, 3.5, 3.6, 3.7 and 3.8

Fig. 3.4 KING ABDULAZIZ MEDICAL CITY - Riyadh

Fig. 3.5 KING ABDULAZIZ MEDICAL CITY - Jeddah

Fig. 3.6 IMAM ABDULRAHMAN AL-FAISAL HOSPITAL (IAAFH)

- Dammam

Fig. 3.7 KING ABDULAZIZ HOSPITAL (KAH) – Al Hassa

Fig. 3.8 Prince Mohammed Bin Abdulaziz Hospital in Al Madinah

Additionally, the NGHA has sixty health centres offering primary and secondary healthcare located throughout Saudi Arabia. The NGHA has approximately 2000 in-patient beds which accommodate some 60,000 in-patients annually as

well as serving in excess of 2.5 million out-patients annually. The. NGHA is accredited by the Joint Commission International.

3.5.1 NGHA Mission Statement, Vision and Values

The Mission Statement of the NGHA is as follows:

"our mission is to provide personalized patient and family centered quality care to patients with cancer and blood disorders for the Saudi Arabian population in the Western Region; to improve and provide excellence in cancer care through evidence, research, and quality improvement; to promote and propagate education and research; and to discover and implement innovative treatment advances and laboratory research aimed at curing and preventing cancer and blood disorders."

This mission statement is reflected in its vision

- "To deliver a comprehensive, holistic, and progressive approach to cancer patient-care with high standards, safety, and satisfaction.
- To contribute to cancer management nationally and internationally by pursuing excellence in cancer care.
- To develop, implement and disseminate cancer education and research in an evidence-based environment.
- To develop state-of-the-art services with cutting-edge technology in Cancer management."

The values of the NGHA include collaborative working in an ethos of transparency and collegiality, to attain high standards of safety and satisfaction for both patients and healthcare providers. Additionally, striving for excellence and efficiency but with compassion for patients and their families in order to

become a world leader in caring for cancer patients through education, training, research and clinical care.

3.5.2 Culture of the NGHA

The distinguishing features of the culture of the NGHA include a strong focus on the individual patient by respecting her/his human dignity. There is also a strong emphasis on team-working and the inclusion of the patient's family in making decisions about proposed treatment or medication for the patient. There is also great emphasis on the safety of the patient. Policies are in place to ensure that errors are systematically recorded and addressed to avoid a recurrence. Staff training is encouraged and opportunities are given for professional development.

The NGHA's culture embraces self-discipline by following through with decisions taken based on sound scientific and objective data. A merit system recognises dedicated work and service and this is taken into account for promotion within the organisation. The NGHA is committed to ensuring an inclusive ethos which respects the rights of all employees.

Essentially, the culture of the NGHA places the patient at the centre of all its activities and endeavours.

The NGHA is a large and complex organization. Each department has its own individual organizational structure chart.

3.6 IT Projects in the NGHA: Context of the Case Study

Case studies can be described as strategies of research which involve exploratory approaches to the empirical investigation of a phenomenon within its own specific context and using evidence drawn from an extensive range of (Yin, 2003; Saunders et al, 2009) This case study investigates IT Projects in the National Guard Health Affairs (NGHA) in Saudi Arabia and, using the success/failure criteria gleaned from the literature review, evaluates each project individually in order to arrive at an overall view of the NGHA IT projects. Although the success/failure factors outlined in the literature review provide a framework for evaluating the various projects, this case study aims at addressing the research questions through understanding the planning and implementation of the projects within the context of the organisation within its specific context in Saudi Arabia. Thus, the aim is not simply to provide evidence for or against each project in measuring up to this or that success/failure factor but rather to reach a richly nuanced understanding of the planning and implementation of each project within its specific context. The importance of the time-bound nature of case studies has been discussed by Creswell (2003, p. 15) and Silverman (2011, p.16) also includes their spatial and socio-cultural dimensions. Additionally, Gillham (2005) stresses the existential dimension of the case study as rooted in a real world situation where all the elements of space, time and socio-cultural dimensions are intertwined. In fact, Gillham (op. cit.) asserts that the phenomenon being observed in a case study can only be properly be studied or understood in context. The general background of this case study has already been presented in Chapter 3 which described the general context of this research.

The focus of this case study is to explore IT projects in the NGHA undertaken since 2000. Some of these projects will have been completed within the period; others will have reached different stages of their development. Of the different types of case studies which can be undertaken (see Table 4.2 in Chapter 4), this will be a paradigmatic case study, intending to present IT projects in the NGHA as metaphors of success and failure for IT projects generally in a developing economy (Flyvbjerg (2006, p. 230). A good example of a paradigmatic case study is Foucault's study of a prison in a European context which resulted in a grounded theory which was generalizable and predictive. However, there is no predictive theory for the generation of a predictive theory Flyvbjerg (2006, p. 232) and thus, there can be no model or set of principles for identifying a paradigmatic case. Since according to Kuhn (1978) the emergence of a paradigm is nothing short of a prototype, a paradigmatic case study is sui generis as no pre-existing standards exist. Instead, it is the paradigmatic case which sets the standard for all other cases of a similar type. Flyvbjerg (2006) comments on how choosing a paradigmatic case can be a highly intuitive process and likens it to how people come to recognise a painting or poem as an outstanding example of its type.

Justification for selecting IT projects in the NGHA as a paradigmatic case study derives from the prestigious award it received as an exemplar of IT project implementation and planning in a Middle Eastern context. Accordingly, this case study presents evidence gathered through observation and document search to support its status as being an exemplary case of successful IT project planning and implementation.

3.7 The Global Context of IT Healthcare Solutions

In the USA it is claimed that thousands of Americans die each year as a result of medical errors that could have been prevented, according to the Institute of Medicine report (IOM) Kohn et al (1999) Beyond their cost in human lives, preventable errors also result in an estimated total cost of between $ 17 billion and $ 29 billion per year in the US hospitals. In response to the shocking IOM report, some healthcare organizations have introduced clinical information systems such as Computerized Patient Records (CPR) to improve outcomes, reduce medication errors, increase healthcare efficiency, and eliminate unnecessary costs.[2] Many hospitals have invested significantly to plan, procure, and implement these advanced systems, including the current focus on computerized physician order entry (CPOE).

CPOE represents an important step forward for healthcare organizations because it embodies a shift from traditional, paper-based care coordination activities to automation of the order entry processes. This shift can be an agent for change, eliminating confusing or illegible hand-written order documentation, minimizing transcription errors and reducing clinical mistakes Snyder et al. (2006). However despite their knowledge, investments and best intentions, most health organizations have not realized a return on their investments Berger &Kichak (2004). In reality, less than 10% of the US hospitals have implemented CPOE according to a recent survey Ash et al. (2004). The deployment of health information systems including CPOE is especially challenging for Saudi hospitals because of high implementation cost, technical complexity, lack of information and communication technology (ICT) infrastructure, and lack of well-trained employees Altuwaijri (2008).

In spite of the many advantages that information systems (IS) bring to organizations, many studies have found that IS project failures are very common. Only 32 per cent of IS projects succeed (delivered on time, on budget, with required features and functions) according to a Standish Group study The Standish Group International (2009). It is estimated that around 44 per cent of IS projects partially fail with time and/or cost overruns and/or other problems. Around 24 per cent of IS projects are total failures and abandoned.

The failure rate of IS projects is even worse in the public sector reaching around 84 percent. The financial impact of the IS project failures is huge. Around $ 150 billion are wasted annually on IS failures in the United States and a similar number is reported in the European Union Gauld (2007). As a result, there is an expanding literature on IS project failures including both the theory and case studies. Some of the studies identified 'Critical Success Factors' (CSFs) that, upon careful consideration by the project team, increase the success rate of the IS projects. In order to provide better understanding of these projects a number these will be discussed below.

CPOE system: Overview and benefits

CPOE is a process of electronic entry of physician's orders and instructions for the treatment of patients. These orders are usually communicated over the computerized patient record (CPR) system to other medical staff (nurses, therapists, or other physicians) or to the departments (pharmacy, laboratory, or radiology) responsible for fulfilling or documenting the order.

CPOE is not a technology, rather it is a workflow design of clinical processes that integrates technology to optimize physician ordering of medications,

laboratory tests, and other clinical investigations AHRQ (2007). CPOE uses clinical decision support systems and links to CPR systems to generate prompts and alerts during the ordering session to notify of potential errors such as contra-indicated medications or routes or duplicate orders Metzger & Fortin (2003).

The functions of CPOE systems vary from one to another depending on the complexity of the system. For example, if we look at a basic CPOE system, it may simply offer a selection menu of drug names and doses or predefined order sets. Other applications may limit field entries for dosage control while others provide default values and templates that offer more guidance. Pull down menus may provide definitions, routes, or information about drug interactions. Some functions may be passive, requiring the physicians to search for a particular field; other functions are active and automatically provide needed data. More advanced applications integrate electronic medical records (EMRs) with surveillance systems that alert the physician of changes in patient vital signs and other clinical status issues (ibid.).

In spite of the benefits of CPOE, the agency for healthcare research and quality (AHRQ) identified 22 situations in which the CPOE system increased the probability of medications errors AHRQ (2007). These situations fell into two categories: Information errors generated from fragmented information systems; and interface problems between humans and machines, where the computer's requirements are different from the way clinical work is organized. The AHRQ calls for careful and thoughtful implementation of CPOE systems to avoid facilitating errors.

In May 2001, thirteen CPOE experts from around the world met at a 2-day conference at a retreat called Menucha, for the purpose of identifying success factors for implementing CPOE Ash et al. (2003). A list of high-level considerations was generated to benefit organizations implementing CPOE which include: Motivation for Implementing CPOE, Costs, Integration of Workflow Processes and Value to Users, Vision, Leadership, Technical Considerations, Project management, training and support, and Learning/Evaluation/Improvement. The conference also listed some minor considerations for each of the high-level considerations.

This section investigates a number of IT Projects conducted in the NGHA which have either been completed or are more than halfway towards completion within the period 2002 – 2014. The relevant facts about each project are presented and evidence is adduced related to the success and failure factors outlined in the literature review, giving particular attention to the three principal factors, namely budgetary costs, quality and time (Atkinson, 1999 p. 338). In all, a total of 8 main over-arching IT projects were identified with 39 subsidiary projects as shown in Table. 3.4

Table 3.4 Classification of Main and Subsidiary Projects

Principal Project	**Subsidiary Projects**
1. *Electronic Medical Record (EMR)	
2. *Clinical Information System (CIMS)	Computerised Physician Order Entry (CPOE) Electronic Medication Administration Record

	Out-patient Pharmacy
	Cache Upgrade
3. Corporate Medical Imaging Informatics (CMII)	Endoscopy reporting System OB Trace view Centralise Monitoring Solution OB/Gyne PACS Picture Archiving Communication System
4. Corporate NGHA Data Centre	**Completed:** Mission Critical Hardware Migration Internet Portal Migrating Service OS from PC Hardware to Server WAN links redundancy with STC and ITC STC back up links Guesthouse unified Wireless Exchange Upgrade Rhapsody Upgrade Eva Storage Upgrade Data Warehouse Migration Desktop Hardening Projects Integrated Lifestyle Management **Ongoing** Upgrade Power Supply Generator IT Security Management System IT Service Management Service (ITSM) Cardiac New Building Network Expansion

	Trauma/ER New Building Network Expansion
	Mission Critical Database Migration
	Active Directory Improvements
	Healthcare Management for Quality Issues
5. Enterprise Resource Planning Systems	Human Resources System (Oracle HRMS) 2008
	Enterprise Asset Management (Oracle – e-AM) 2008
	Business Centre Billing System 2009
	Oracle Financial Modules for KSAU-HS 2009
	Oracle Financial Modules for International King Abdullah Medical Research Centre 2010
	Instruments Management System Project 2010
	Oracle Training Module Implementation 2010
6. *Information Services	
7. MIYS CPR Electronic Patient Record System	
8. *AGFA Healthcare IMPAX RIS/PACS	

Source: Self

*: These projects have been discussed in some detail in this chapter

These 38 Projects were then examined and a decision was made regarding which of these should remain in the study. Some smaller projects were omitted due to the difficulty of obtaining sufficient information. This resulted in the following list of 9 IT projects which were researchable (Table 3.5)

Table 3.5 Major IT Projects in the NGHA since. 2000

Project	Start	Comp	On Time	Quality	In Budget	Success	Failure
Electronic Medical Record (EMR)	2001	2010		Aftercare Service inadequate	✓		✓
Clinical Information System	2004						
Computerised Physician Order Entry (CPOE)	2008	2011	✓	✓ Late start date due to extraneous factors		✓	
Corporate Medical Imaging Informatics (CMII): Picture Archiving Communicatio	2006	2013	✓	✓	✓	✓	

n System (PACS)						
Enterprise Resource Planning Systems (ERPS)	1998	2002	✓	✓	✓	✓
Building IT Infrastructure	1990s	2011		✓		✓
Data Warehouse System	2009	2012		Delayed due to extraneous factors		
Office Administration System	2006	2013				

Source: Self

3.7.1 The Electronic Medical Record (EMR) Project

An EHR system is a computerized database of information relevant to patient healthcare intended to facilitate ease of access by authorized persons acting on behalf of the healthcare provider in order to provide an efficient service to patients. Primary application of the system relates to activities related to direct care of the patient. Secondary applications include statistical analysis, research, quality control, legal and training activities (ISO/TC 215 Technical Report,

2003). A comprehensive definition is provided by Latrour & Echenwald-Maki, (2006 p. 212).

:“Electronic health record systems are computerized records of health information specifically designed to help clinicians by providing accessibility to complete and accurate data, alerts, reminders, clinical decision support systems, links to medical knowledge and other aids”.

The advantages of an EHR system over the more conventional paper-based models have been outlined by many authors including Ammenwerth et al., (2004). These include the provision of a coherent information system allowing for 24 hour access in contrast to the conventional system where medical practitioners had to wait for the retrieval of such records, especially if they were stored in a different location than the one where a patient was currently being treated. Also, paper-based documents have the disadvantage that they could easily be lost or misplaced and different users may have updated them in different ways Laerum et al. (2003). The administration of healthcare in an EHR system is provided by means of a Direct Care Function which permits immediate medical or clinical decisions based on presenting symptoms and taking the patient’s previous medical history into account Dickinson et al. (2004). One advantage is that the discovery of allergies to certain medications can be stored and are not reliant on the patient’s memory or self-reporting (ibid.).

However, an EHR’s structure is quite complex (Dickinson et al. 2004) and users of the system require, not only a thorough initial training programme but

continuous training as research has shown that users do not avail of its full potential (Laerum et al., 2001 and 2003).

As has been shown in Table 3.1, the rapid growth in the population has alerted the Saudi Government to the need to provide an adequate healthcare system for the future while, at the same time, minimizing costs. Healthcare expenses amounted to US $16.7 billion in 2009 which represented an increase of 26.5% on that of the previous year (US $ 13.2 billion) (Guo. 2010). Accordingly, the introduction of an efficient EHR system was examined as an approach to this problem by the Advisor to the Saudi Minister of Health by taking into account the factors which had led to similar systems failing in other countries (ibid.). One major factor which had been found in some countries was the issue of patient privacy. For example, one project in the Netherlands, their Healthcare Record Locator Programme, was found to have been inhibited in its implementation due to clinicians' apprehensions related to protection of patients' privacy and confidentiality (ibid.). Patient privacy also proved to be an obstacle to gaining Congress approval for an EHR project in the US (Democratic Leadership Council, 2009).

The problem of patient privacy in the implementation of EHR systems in Saudi Arabia has been examined by Alanazy (2006) who found that eight of ten barriers to implementation were significant. One of these eight obstacles was related to issues of patient confidentiality and privacy. Whilst issues of privacy and confidentiality also surrounded paper-based systems, although patients were found to be generally receptive to the introduction of EHR systems due to their perceived benefits, Slonim et al. (2005) reported the fears of some patients

due to the threat to their privacy and confidentiality arising from possible attacks by hackers or unauthorized access by insurance firms, government bodies or marketing operations Corkhill (2001) which have been advanced as some of the reasons why medical practitioners have been resistant to the implementation of EHR systems despite their perceived advantages in healthcare. Tierney et al (2006) have also commented on the reluctance of people suffering from HIV to have their data stored electronically in developing countries where their condition might be hypersensitive.

In relation to the implementation of EHR systems in Saudi healthcare, Altuwaijri (2008) has classified the main barriers to be confronted:

1. Economic Barriers: These most often effect projects during the visioning stage due to the availability of funds.
2. Technical Barriers: These represent the available infrastructure required for successful implementation.
3. Organisation Barriers: These represent the problems of change management and leadership issues involved in gaining acceptance of the new system to replace existing systems which may vary from one locality to another.
4. Behavioural Barriers: These refer to the problems of addressing resistance from many practitioners due to issues of privacy and confidentiality.

Altuwajri (2008) also comments on the use of critical success factors based on experiences of previous projects in other countries. These are generally considered at visioning and planning stages. However, these were found to be

less effective at other stages of implementation where value to user, cost implications, project management, training and technological issues were found to be more influential (ibid. p. 177). However, due to the complexity of the implementation of EHR systems, Altuwairi (2008) stresses the need for e-health Programme Management Office (PMO) whose role would be that of overall implementation of corporate strategy for eHealth project management (ibid. p. 177). Essentially, PMO's main function would be one of alignment of all projects drawing on a synergetic relationship between the various project managers and of improved communications of the success factors and the sharing of knowledge and experience at all levels.

However, Aldosari (2012) has emphasized the importance of a system of auditing newly implemented EHR systems for medical and legal reasons, based on a study in one Saudi hospital. Auditing was found to be necessary in order to monitor the integrity accuracy and security of electronically stored patient data. The findings revealed 100% compliance on "event/transaction audit accessibility and display quality" and 80% compliance on "audit accuracy and comprehensiveness". However, "system function and audit accuracy" was found to have only 50% compliance and "observation, comparison of narrative and audit" only 67% compliance. Five functions were rated as zero. Overall compliance averaged at 71%. Nevertheless, Aldosari reported a satisfactory audit and explained the zero ratings as due to delays in the introduction of phase II of the EHR system. The audit report recommended a further audit once phase II has been fully implemented and also that similar audits should be conducted in other Saudi hospitals.

Nevertheless, Saudi Arabia is reported as having one of the best health care systems in the Middle East (Househ, et al., 2010) where one of its largest and best healthcare institutions is singled out for special mention. This is the healthcare system administered by the National Guard Health Affairs (NGHA). The primary goal of the NGHA is to become a leading healthcare provider, not only in the Middle East, but also to receive and merit global recognition. The need for change in the way that healthcare is provided is recognised and key to achieving these aims is the implementation of an IT system which permits interaction between providers and patients.

One of the changes requires moving away from traditional paper-based systems and reliance on human memory towards an IT solution where patients' data may be securely stored and easily accessed by authorised users including patients. For these purposes a college dedicated to health informatics has already been established at the King Saud Bin Abdulaziz University for Health Science (KSAU-HS). A further institute for research purposes is currently planned which will focus on Health Informatics (ibid.p.45).

3.7.2 Clinical Information System

The NGHA has implemented health informatics systems to international standards. These were contracted to the Misys organization, an internationally recognized corporation. This project was fully implemented within its targeted completion time of two years and six months.

The launching of the new system involved a three stage process which was commenced towards the end of September 2004 and was fully operational within a fortnight. This trial took place first in the King Abdulaziz Medical City, Riyadh and was then introduced in all the hospitals and health centers of the

NGHA. The project was reported to be of high quality and meant that the NGHA was a pioneer in this field as only 5% of healthcare systems globally had, at that time, implemented similar systems.

The Objectives of the project were:

1. To procure and install an integrated system of health informatics with links to all constituent hospitals and health centres in the NGHA. The system was planned for information exchange embracing medical, technical and administrative aspects of patient healthcare. The information had to be presented in an easy to access manner and to have the capacity for sequencing, planning, research, education and training and cost accountancy on a continually updated basis. It was also designed to aid decision-making for the prevention and control of diseases.

2. To be capable of interfacing health information system with previously implemented accounting and financial control systems. It was also expected to have the capacity for coordinating diagnosis and medical interventions in the best interests of patients while, at the same time, minimising costs. It was also expected to provide information which was accurate in terms of diagnostics but could also facilitate budgeting..

3. To continuously update Electronic Medical Records (EMR) based on a unique patient identity number which would have the capacity for concealing personal data based on levels of authenticated access. In addition, the system was to have the capacity for updating Saudi governmental statistics for births and deaths. It should also have the capacity to check if the holder of a medical

card was the patient whose identity corresponded with computer-held information.

4. To coordinate the works of various medical and technical departments and to be capable of transcending boundaries between different departments. The patient's EMR was to be the key within this extensive relational database, which could collate information from a wide range of departments such as pharmacy, radiology, medical diagnosis, treatment and known adverse drug reactions. This would minimise the need for transfer of paper documents and avoid unnecessary delays in diagnosis and treatment.

5. To support research by continuous updating of various health indicators.

6. To become recognised as an outstanding system for collating and sharing patient information in a timely and cost-effective manner in order to deliver an excellent standard of service to patients, healthcare staff, researchers and various stakeholders including governmental bodies.

Functionalities included:

- A patient management system, which streamlined and improved appointments with doctors and consultants, hospital bed management and patient after care following discharge.
- A pharmacy management system which included a minimum stock level and reordering function. It also had a facility for flagging up known adverse drug reactions for particular patients. This technology reduced reliance on paper-based methods which took time to transfer and could easily become mislaid or misinterpreted due to difficult to read

handwriting. This could greatly reduce patient distress caused by mistakes in treatments.

- A radiology monitoring system which automatically transferred images to the individual EMR
- A system for evaluating and appraising diagnostics and therapeutic services.
- A nursing monitoring system to assist nurses with the administrative aspects of their job, thus greatly freeing them from desk work to devote more time and attention to patients.
- A facility for updating billing and Insurance to include issuing bills and keeping costs of medical services up to date and for for a speedy transfer of information to medical insurers.
- A staff scheduling system which made allowances for the provision of an emergency response team.
- An information support system consisting of numerous relational databases to facilitate both administrative and medical departments as well as senior management in planning and evaluation

3.8 Features of the system included:

1- Central Devices:

Central devices were designed for operating and coordinating the Health Informatics Systems and other supporting systems and databases on a 24/7 basis. The devices continuously operate based on the duplication of its various components so that there is no interruption to information supply due to component failure. Essentially it is a robust back-up system which ensures that

performance is not impaired due to component failure or energy supply outages.

2- Network:

The NGHA network has been developed for both LAN and WAN by using the most advanced technologies supplied by Cisco Company as well as wireless networks in certain medical units to ensure continuity of service to patients.

3- Office Computers and Printers:

The installation of PC's, printers and terminals to enhance access for many more users as well as laptops and other paging and messaging devices.

3.9 Training:

The NGHA has developed an innovative program for training for over 4000 employees at various levels which included training to update with the latest techniques as well as refresher courses. This aspect has been one of the outstanding success factors in the NGHA.

3.9.1 Computerised Physician Order Entry

The NGHA commenced by piloting the CPOE in the intensive care unit (ICU) in one hospital in order to evaluate its possible benefits as well as assessing potential risks. Following this pilot scheme, various medical staff were asked to fill in a questionnaire based on their observations relating to 32 CSFs gleaned from the relevant literature. Additionally, meetings were held where staff could voice any opinions or concerns.

Analysis of the survey responses revealed that the 32 factors were relevant. The three most prominent factors were: the "before go-live training", adequate

resources during the pilot study and the stock ordering and delivery time. It was concluded that the potential risks were greatly outweighed by the perceived benefits. As a result, this project was completely implemented in 2011.

One benefit of the CPOE systems was accuracy and the reduction of errors in prescribing medicines. However, this system is widely reported as being prone to failure. Nevertheless, many risks were averted by a careful analysis of feedback and survey data and it was possible to produce a customised set of CSFs and this facilitated its successful implementation in the NGHA as well as producing reports which could be generalised to many other situations

3.9.2 Corporate Medical Imaging Informatics (CMII): Picture Archiving Communication System (PACS)

The main components of the CMii include: :

1. **Picture Archiving and Communications System (PACS)**

PACS is a useful package suitable for ease of storage and retrieval of images.

It has a storage capacity of 18 terabytes for short term imaging and 40 terabytes for long term imaging. This enables the recording of all radiology procedures and their management by the digital PACS system. A WAN facilitates image viewing across all NGHA facilities.

2. **Radiology information system (RIS)**

PACS is controlled by the Radiology Information System (RIS) which links imaging to various reports. .

3. **PACS Reporting workstation**

This computer system allows radiologist to search and retrieve images that have been stored on the PACS .It displays and creates primary reports on the images which have been selected.. A high quality of presentation is made possible at the works station due to its high resolution. As well as presenting images for viewing it also interfaces with other data. There are now over 60 diagnostic workstations throughout NGHA departments.

Modality Integration

This involves the linking of imaging modalities with other RICs as well as the PACS imaging information archival systems. Approximately 100 modalities are connected to the PACS in the NGHA.

4. HIS/RIS Interface

This interfacing is a highly complex system due to the large volume of data which is exchanged between the HIS and RIS covering a range of scenarios. Implementation was technically quite challenging for technical staff to be able to envisage the many different contexts of data transfer under numerous conditions.

Statistical report

This has been of major importance for monitoring and controlling departments with NGHA. Statistical reports are useful for providing descriptive accounts and analysis using multiple tests of data from many sources and is of immense value for evaluation and future planning.

3.10 Conclusion

Information on the various IT projects in the NGHA is not easily accessible and a number of projects were developed in a piecemeal fashion so that comprehensive information is rarely to be found from single sources. This also reflects the fact that new developments in IT solutions happen at such a rapid pace that, occasionally, projects in progress are overtaken by more innovative solutions and thus require amending. However, missing data from Table 3.7 can be addressed in the case study and interview analysis.

Chapter Four

Research Design and Methodology

4.1 Introduction

This research is instigated by the high rate of IT Project failure within the Saudi Healthcare system. Out of 52 different IT projects, 41 were deemed to have failed – a failure rate of almost 79%. As discussed in the literature review, when a project fails, it is not necessarily abandoned and may be allocated additional funding or time so that it eventually completes. However, there are many instances where the project is completely abandoned at considerable cost in terms of time, effort and money. For this reason, it is urgent to discover the root causes of these failures as well as identifying the success factors which characterise successful projects.

In the previous chapter, the literature review revealed that among the many different schemes of failure/success factors, two emerged as being prominent in all schemes, namely time and budget. Where a project overruns on either time or finance, it is deemed to have failed. Some latitude is permitted so that a small overrun on time or budget would not be sufficient reason to consider it to have failed. Such overruns are usually in terms of a fixed percentage of the time or financial budget allocation.

Budgetary and time constraints fall within the domain of project management. However, as was discussed in the literature review, project planning and implementation are not just tasks for senior managers. The importance of middle management emerged as essential for the translation of strategies and policies into procedures for successful implementation. Thus, this piece of

research will focus on perceptions of middle managers as well as those of senior managers.

Despite the high failure rate within the Healthcare sector, there is a paucity of research into the success or failure of Saudi IT projects generally Alfaadel et al.,(2008). Only a few studies have focused on IT projects within Healthcare. This study attempts to address this deficiency in research and will focus on the National Guard Health Affairs (NGHA), a distinct sector which is not within the remit of Saudi Arabia's Healthcare system but is governed by the Ministry of Defence. Although previous studies focused on identifying the critical success and failure factors in their totality, this piece of research will focus only on the two most salient factors of time and budgetary targets and the roles of senior and middle managers as they work together in meeting those targets. The importance of this piece of research is its attempts to investigate the extent of the influence of time and cost targets on the implementation of the IT project, and also examining the role of project planning at the point where a commitment is made to successfully complete the project within a given timeframe and monetary budget.

This chapter will commence with the purpose statement for this thesis. This will be followed by a consideration of the elements of the design following Guba and Lincoln (1985) and the scheme proposed in Crotty (1998). A conceptual framework for the design will be presented. This will be followed by a discussion of the elements of the design including ontological and epistemological issues and the theoretical perspectives of the research design. Next, a discussion of methodological issues will be outlined and a justification for the choice of

method will be presented. The importance of reflexivity and evaluation will be argued and how these were incorporated into the research design. Finally, the choice of instruments for data generation, namely case study and interviews, will be justified and issues relating to these methods will be critically examined. A conclusion will summarise the approach that was adopted.

4.2 Purpose Statement

The purpose of this research is to discover, from the perceptions of key project senior and middle managers, the reasons why IT projects fail due to exceeding their target completion time and/or significant budget overspend within the NGHA in order to be able make recommendations which will lead to more positive outcomes for existing and future projects.

4.3 Design Elements

This section will discuss the various options open to the researcher in addressing the research questions and how data will be collected and analysed in the process. It will also present a justification for the choice of one method in preference to others.

The choice of approach to be adopted for the research usually means either a quantitative or a qualitative approach or a combination of both qualitative and quantitative approaches in what is called a mixed method. For this study, the choice of method is a qualitative one.

The Research Design follows that of Guba and Lincoln (1985) with reference to Crotty's (1998) four elements of Design. In Crotty's view, the four elements, namely as epistemology, theoretical perspectives, methodology and methods

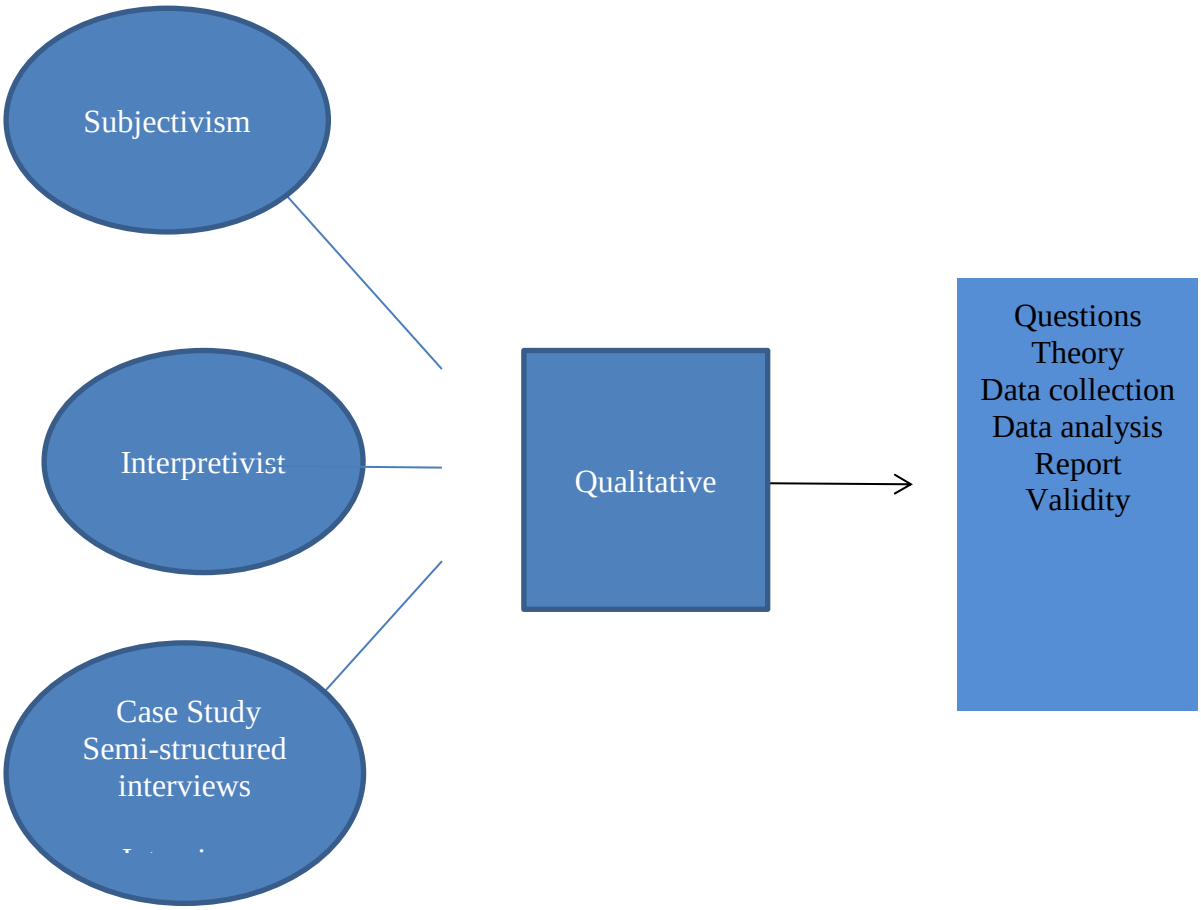
are distinct stages in the research process and that they form a hierarchical order in which shapes the research design Crotty (1998, p. 3). However, Crotty tends to include ontology with epistemology, although these are distinct divisions of philosophy. In this study, Crotty's four elements model will be followed but with some attention being given to ontology. Nevertheless, Crotty admits that ontology should be prior to all but that it is implicit in the epistemology "to talk about the construction of meaning [epistemology] is to talk about the construction of a meaningful reality [ontology] Crotty (1998, p. 10).

The nature of knowledge begins with either objectivism or subjectivism. Which epistemological stance is taken underlies the whole research design and governs the particular theoretical perspective that is adopted which is often either postpositivism or interpretivism. These in turn determine the methodology (constructivism and grounded theory). Finally, the methodology influences the method selected questionnaires or interviews.

4.3.1 A Conceptual Framework for the Research Design

Having decided that a qualitative type approach is most appropriate in the context of this study, it will be useful to construct a conceptual framework which will guide and direct the research design by identifying the epistemological assumptions which are embedded in the design, the philosophical position which is adopted in the methodology, the plan of action or methodology which links these plans of actions to outcomes and, finally, the techniques or methods which will be used, Crotty (1998) cited in Creswell (2003, pp. 4–5). A conceptual framework for the design is illustrated in Figure 4.1

Figure 4.1 Conceptual Frame work for the Design



Design adapted from Creswell (2003, p. 5)

4.4 Ontology and Epistemology

Epistemology is “the relationship between the knower or would-be-knower and what can be known” Guba and Lincoln (1998, p. 201). It considers the question of what kinds of knowledge are possible and how we can be sure that such knowledge is legitimate Maynard (1994).However, which epistemological approach is followed ultimately depends on the ontological assumptions of the researcher. Two broad ontological positions are possible, realism or idealism. If the underlying ontology is that of realism, an objectivist stance to knowledge is adopted which considers truth as really existing and as mind-independent. Truth is seen within realism as the correspondence between the mind and objective reality. Absolute truth is considered to be unattainable and research based on a realist ontology tends to claim “approximate truth” or a “tentative theory” which holds until a more plausible theory emerges. This generally leads to a positivist or post-positivist epistemology.

Alternatively, an idealist ontology views reality as largely mind-constructed – the human mind interpreting external reality and attaching some meaning to the phenomena of experience. Society is understood as being shaped by human ideas, values and beliefs. Epistemology then becomes a matter of interpreting the meaning of phenomena. Natural phenomena are considered to be more amenable to being understood in a post positivist way through the methods of observation or experiment. However, the complexity of human behaviour and human intentionality is more amenable to being grasped by a constructivist or interpretivist approach, which is why it is most appropriate for this research. In fact, some scientists are now questioning the assumptions of a totally mind-independent reality, for example, the French theoretical physicist Bernard

D'Espagnat, who views such an assumption as being in contradiction to the latest empirical findings of quantum mechanics: "what quantum mechanics tells us, I believe, is surprising, to say the least. It tells us that the basic components of objects – the particles, electrons, quarks etc. – cannot be thought of as "self-existent." The Guardian (20th March, 2009). Nevertheless, he continues to assert the fundamental assumption of philosophical realism that an "ultimate reality" exists which is independent of space and time (ibid). Thus, our knowledge of reality is largely mind-constructed which implies an interpretive approach to the data of human experience and this represents the philosophical stance which underlies this research.

Accordingly, an examination that involves human actions, intentions and behaviour, which is the aim of this research, is more amenable to an interpetivist approach. Guba and Lincoln (1998) see this as implying a relativistic approach, following Hugly and Sayward (1997, p. 278) who assert that "there is no objective truth to be known", due to the many possible interpretations that can be made. However, the researcher does not believe that an interpretive stance necessarily implies relativism and will argue that a well-designed qualitative study will meet rigorous standards for validity and reliability which guards against relativism. The fact that the investigator and the object of investigation are "interactively linked so that the findings are literally created as the investigation proceeds" Guba and Lincoln (1998 p 207), need not imply a relativist conclusion. The realist stance, that truth is objective and mind independent actually implies an assumption that the universe or external reality is intelligible. But the results of a qualitative study, although interpretivist in nature, is safeguarded against relativism by a number of checks of validity and

reliability based on the notion of inter-subjectivity. Walsham (2006, p. 321) sees the interpertivist understanding of reality as flowing from “inter-subjectivity rather than objectivity”. In this study, inter-subjectivity will be achieved by checking the results with those of existing literature as well as checking a synopsis of the findings with the participants. By both of these procedures, there will be assurance that both data and analysis “are created from shared experiences and relationships with participants and other sources” Charmaz (2006, p. 331). The fact that convergent and divergent realities emerge from qualitative studies does not necessarily imply “relativism”. Divergences are also found in quantitative studies, such as those based on trait theories of personality. What is expected to emerge from a qualitative approach is a study of human actors working within a specific context and time, and its value lies in the understanding of this context that emerges from the findings. This implies that the participants are more than subjects to be counted but are what Moustakas (1994) calls “co-researchers”.

Thus, the design of this research has been informed by a knowledge claim which is founded on a subjectivist epistemology. This approach contrasts with the claims of objectivism which posits that truth is independent of the human mind, that it really exists and that it can be discovered by grasping the evidence that is unearthed in the external environment. Positivists tended to hold that the attainment of absolute truth was a real possibility. This belief was largely the result of the rationalist claims of the Enlightenment with its repudiation of the narrative accounts of mythology and religion. Enlightenment claims that human reason would eventually attain absolute truth have been critiqued especially by critical theory philosophers such as Adorno and Bernstein (2003). For Adorno,

mythology and religion were, themselves, forms of enlightenment. Adorno also correctly predicted that people would revert to mythology and earlier sources of knowledge which has happened with the rise of the New Age Movement and postmodernity.

However, the most formidable challenge to the claims of positivism was to come, not from philosophy, but from within scientific positivism itself. Scientific theories were seen to be tentative in nature. For example, the Aristotelian-Ptolemaic view of a geocentric universe which prevailed from antiquity was discarded in favour of a heliocentric universe during the scientific revolution of the 16th and 17th centuries and this was an “absolute truth” claim due to the robust evidence provided by astronomy. However, this absolute truth claim being made for a heliocentric universe had to be abandoned eventually when the inter-galactic nature of the universe became established. Such shifts in theories of the universe have been studied by Thomas Kuhn who speaks of these scientific revolutions as “paradigm shifts” Kuhn (2012). A paradigm shift is much more than the replacement of one theory by another. It is an alternative world view whereby the issue of where the centre of the universe lies may no longer be important in the light of Einstein’s theory of relativity. Thus the challenge to the orthodoxy of scientific positivism came not so much from philosophy but from within science itself. Thus post-positivists make no claim to absolute truth but rather to “approximate truth”.

This research is based on a subjectivist knowledge claim which holds that absolute truth is not possible, especially when applied to human behaviour. There is not really a mind-independent world. Rather, the human mind

investigates the data of human experiences and interprets them in some way. This research will remain committed to the position that truth can be found to some degree (but not absolute or even approximate) by the sense or meaning the human mind creates out of the data of experience. The data from the semi-structured interviews will be processed through an interpretive approach in the light of the findings of the literature review and the case study. For interpretivism, it is the meanings that human beings attach to their experiences that are important, rather than a claim for objective truth.

Thus, the elements of inquiry in this study comprise a subjectivist epistemological stance which is committed to an interpretivist theoretical perspective and the collection of secondary data through a case study of the NGHA, supported by primary data generated through semi-structured interviews

4.5 Theoretical Perspective: Interpretive/Constructive

In adopting a subjectivist stance, the current researcher is more than a collector of data but is actively involved in interpreting how the different participants understand their roles and actions. Intrepretivism is not simply confined to the analysis as in quantitative studies but is also involved in interpretation even in the collection of the data during semi structured interviews. As the researcher is part of the organisation, it is possible that the organisational context and culture will be understood in great depth. Hence, the researcher has adopted Max Weber's concept of 'verstehen' as "understanding something in its context" Holloway (1997 p 2). Peoples' actions are often not understandable in relation to the laws of nature as people behave in different ways, depending on the particular time, place and state of mind of the actors. For that reason, a case

study has been included to cast some light on the specific context within which the participants were operating. Weber admits that all social research contains some bias due to the values and beliefs of the researcher and participants and it is impossible to separate these out both in data collection and analysis Holloway (1997).

4.5.1 PAR and Grounded Theory

Action Research is a form of applied research (Bryman and Bell, 2011). Thus, it is concerned with solving problems within the context of study with the aim of achieving practical results. The term action research was introduced by Lewin (1946). While there are multiple forms of action research (Saunders, Lewis and Thornhill, 2007), it is, in its simplest form, a four stage cyclical process (Lewin, 1946). Following Lewin (1946) the process involves the definition of a problem to be solved, or an objective to be achieved. Following this, a plan is formulated that will achieve the desired result; the plan is then implemented, monitored and evaluated. Following evaluation of the implemented plan any desired changes to the plan are made and iterations of the cycle are made until the requisite result is achieved.

The research undertaken within this doctoral research can be characterized as a form of participatory action research (PAR). Within PAR members of the organisation within the research setting take an active part within the research. They contribute to the design and implementation of research – and are key actors within the process (Lewin, 1946). Further, members of the organisation are considered to play an important role since they are perceived as being

knowledgeable, and having context-specific expertise with respect to the operations and difficulties within their organisation (Greenwood, 2012).

Within this doctoral research, the researcher is a member of the organisation that is being studied. The researched holds the position of Head of Communication in the Madinah region. As such the researcher is heavily embedded in the context, and the scope and questions of the research are in part based on the tacit understanding that the researcher has of the context. Following Nonaka and Takeuchi (1995) it may be argued that this tacit understanding of the issues facing the organisation has been developed by the researcher spending time within the organisation, observing day to practices, and engaging in discourse and work with colleagues. Moreover, participants within the research are members of the organisation, and consistent with Greenwood's (2012) recommendations it is their knowledge and expertise of organisational problems and proposed solutions that is being sought through the research process.

The PAR approach to research is not new (Whyte, Greenwood and Lazes, 1998) but is often under-represented within the community of academic researchers (Bryman and Bell, 2011). Nonetheless, it has significant practical value (Lewin, 1946; Whyte, Greenwood and Lazes, 1989; Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2011) and can be particularly powerful for addressing issues of change and learning within organisations (Bryman and Bell, 2011). Thus, based on the considerations above it can be argued that it is reasonable to characterise this doctoral research as a PAR study.

While the study adopts a PAR approach, the researcher has adopted grounded theory for the generation of a theoretical contribution. The grounded theory approach stems from the philosophical positions of pragmatism and symbolic interaction (Corbin and Strauss, 1990). As Corbin and Strauss (1990) note there are two important principles that stem from these philosophical positions. First, phenomena are not considered static. Rather, they are considered to change in response to conditions. Thus, the process of change must be built into the research method. Second, grounded theory eschews a strict determinism and anti-determinism. In contrast to these polar positions, grounded theory posits that individual actors are able and capable to (although they may not) make choices as in response to their conditions, and the consequences of these responses. In what follows, an outline of the grounded theory method adopted is provided.

The method of grounded theory is one of discovery (Charmaz, 1990; Strauss and Corbin, 1990) and leads to the construction of meaningful categories of data that represent and explain sociological life (Charmaz, 1990; Strauss and Corbin, 1990). The central difference between grounded theory and other qualitative methods is that data analysis with grounded theory begins immediately following the collection of the first 'piece' of data and is on-going (Strauss and Corbin, 1990). Grounded theory starts with the lived experience of participants (Charmaz, 1990) and once the first piece of data is collected, the analysis begins, and throughout the research process, data collection and analysis are interrelated (Strauss and Corbin, 1990). Within grounded theory, concepts are taken as the basic unit of analysis – these are the interpretations made about observed or described phenomena (Strauss and Corbin, 1990).

Concepts are generated through an open-coding process in which relevant 'chunks' of data are interpreted meaningfully with reference to a concept that explains the data (Strauss and Corbin, 1990). The researcher observes phenomena, develops concepts, checks and then affirms these, and seeks to discover more about them (Charmaz, 1990; Strauss and Corbin, 1990). The development such concepts ultimately leads to the generation of categories in which interrelated concepts are subsumed, and the relevance of these relationships can be checked both within existing data, and in new data (Strauss and Corbin, 1990). Throughout the research process the grounded theorist follows new ideas, and intuitions and this leads to changes in data collection methods and techniques and may develop new categories (Charmaz, 1990). As Charmaz (1990) notes the emergent categories conceptualise and explain:

1. The data
2. Common sense understanding of the data
3. Other theoretical explanations

Once these emergent categories have been determined the grounded theorist engages in theoretical sampling which involves the collection of new data to extend, check and refine the theory that has been developed (Charmaz, 1990; Strauss and Corbin, 1990). Indeed, this process of checking and interrogating the data to test and check the concepts and developed categories is an on-going process, the grounded theorist seeks to "affirm, check and refine their developing ideas" (Charmaz, 1990, p.1162) and use the emerging theoretical categories to shape and guide the data collection process. It is in this way that

the theory developed is grounded in the phenomena being studied. To enable the researcher to maintain an understanding of the development and coherence of ideas and concepts developed the research is advises to keep memo's and notes of their ideas and intuitions, this helps to keep track of relevant ideas (Corbin and Strauss, 1990). Within grounded theory the researcher also seeks to explain patterns and variations, by determining the processes through which phenomena occur, or by determining how phenomena change in response to environmental conditions (Corbin and Strauss, 1990). Within the final stages of the grounded theory approach the research develops hypotheses among categories, and tests these with existing or new data and ensures to take environmental and structural conditions into account in the development of the analysis (Strauss and Corbin, 1990).

4.5.2 Reflexivity

In order to minimise bias based on the researcher's own beliefs and values, Interpretive studies require some degree of reflexivity. This reflection will be carried out by the researcher by considering the analysis and findings that emerge by cross checking them with the literature and feedback from the participants on a preliminary report. Foucault's analysis of power was kept in mind by the researcher who, in conducting the interviews, was in a position of power over the participants. The researcher was careful to avoid suppressing any aspects of the interview in order to allow the participants to fully articulate their understandings of the phenomenon being investigated.

Four levels of reflection have been proposed by Alvesson and Skoldberg (2009, p. 273) and the following schema was adapted based on their model:

Table 4.1 Levels of Reflexivity

LEVEL	FOCUS
Interaction with participants	Interviews and Case Study
Interpretation	Meanings attached to experiences
Critical Interpretation	Power and values or ideologies
Reflection on language used in preliminary report	Voices used in the text and critical feedback from participants

Adapted from Alvesson and Skoldberg (2009, p.273)

Thus, reflection occurred at the micro level of case study and interviews as well as at the macro level of critical interpretation and reporting. Blaxter et al., (2001) recommended the keeping of a research diary and this advice was followed in this current research to aid reflection and to ensure that nothing significant had been missed out.

However, the practice of returning a preliminary analysis to participants for checking as part of reflexivity has been criticised by Sandelowski (1993), who considered that the practice was based on an assumption of the existence of a fixed truth. Smith (1999) went even further in his critique by regarding reflexivity as an illusion of objectivity.

4.6 Methodology

All research methods are founded on certain assumptions based on the nature of the phenomenon under investigation. Quantitative methods are based on assumptions of scientific realism and adopt an objectivist stance which posits a mind-independent reality which is discovered through scientific methods of research. This is essentially a top-down approach which commences with a theory or hypothesis which is then tested in specific circumstances. It is based on the assumptions of positivism or post-positivism with claims of revealing the truth of the matter with high degrees of certainty.

Qualitative methods are based on a subjectivist approach which sees reality as something that is largely interpreted by the mind. It is an inductive approach which attempts to avoid presuppositions and permits a theory to emerge from the data under investigation. The decisions and behaviour of human beings are often quite complex and qualitative methods attempt to explore such phenomena in order to gain more subtle or nuanced insights rather than the more simplistic or reductionist explanations of quantitative methods.

The qualitative approach adopts an interpretivist stance which understands reality as largely interpreted by the researcher. Reality is not seen as mind independent but as something to be comprehended and explored. Although qualitative methods also embody theories, they are much more flexible and open to the data and often the theory is something which emerges from the data in a bottom-up type rather than a top-down process which is especially the case with grounded theories or phenomenological inquiries.

A third approach is that of a mixed method which attempts to combine both quantitative and qualitative methods in order to benefit from the combined strengths of each. The claim here is that such an approach will yield both breadth and depth in the analysis. However, the mixed methods approach is problematic for a number of reasons. Firstly, there is the problem of mixed epistemologies. It is difficult, if not impossible, for the researcher to adopt a post-positivist stance in one stage of this method and to then switch to an interpretivist stance in the second stage of the method, and to do so with consistency. Pragmatism is the philosophical solution often proposed whereby an eclectic approach is taken to selecting the best from either method. There can also be a problem in the analysis stage of a mixed method where the findings of one method fail to be corroborated by the findings of the other. Nevertheless, mixed methods often result in studies that have both depth and breadth to their findings.

4.6.1 The methodology underlying this research

This research aims at supporting the data derived from the case study of 10 IT projects in the NGHA by conducting 14 semi-structured interviews for the purposes of gaining some insights into the thinking of project managers, both at senior and middle levels. The 10 IT Projects are listed in Table 4.2:

Table 4.2 The ten NGHA IT Projects included in this study

Principal Project	Subsidiary Projects	Location
9. Electronic Medical Record (EMR)		All sites
10. Clinical Information	Computerised Physician	

	System (CIMS)	Order Entry (CPOE) Electronic Medication Administration Record Out-patient Pharmacy Cache Upgrade
11.	Corporate Medical Imaging Informatics (CMII)	Endoscopy reporting System OB Trace view Centralise Monitoring Solution OB/Gyn PACS Picture Archiving Communication System
12.	Corporate NGHA Data Centre	**Completed:** Mission Critical Hardware Migration Internet Portal Migrating Service OS from PC Hardware to Server WAN links redundancy with STC and ITC STC back up links Guesthouse unified Wireless Exchange Upgrade

Rhapsody Upgrade

Eva Storage Upgrade

Data Warehouse

Migration

Desktop Hardening

Projects

Integrated Lifestyle

Management

On-going

Upgrade Power Supply

Generator

IT Security Management

System

IT Service Management

Service (ITSM)

Cardiac New Building

Network Expansion

Trauma/ER New Building

Network Expansion

Mission Critical

Database Migration

Active Directory

Improvements

Healthcare Management

for Quality Issues

13.	Enterprise Resource Planning Systems	Human Resources System (Oracle HRMS) 2008 Enterprise Asset Management (Oracle – e-AM) 2008 Business Centre Billing System 2009 Oracle Financial Modules for KSAU-HS 2009 Oracle Financial Modules for International King Abdullah Medical Research Centre 2010 Instruments Management System Project 2010 Oracle Training Module Implementation 2010
14.	Information Services	Discrete
15.	MIYS CPR Electronic Patient Record System	Discrete

16. AGFA Healthcare Discrete
    IMPAX RIS/PACS
17. Health Information Riyadh
    Systems
18. Picture Archiving Madinah
    and
    Communications
    Systems (PACTS)

The number of interviews was determined by a strategy of saturation sampling whereby the initial thematic analysis of transcripts from 12 interviews was first conducted. A further two interviews were then analysed and these added no new themes or issues to those already identified. It was then decided that the sampling had reached saturation point and no additional interviews would be required.

Data from both stages (the case study and the interviews helped the researcher to gain insights into the stresses and strains key stakeholders were under in moving a project forward to meet its time and cost targets. For example;

Interview 4: (4dPengRi)

“Interviewer: How difficult was it to drive the project on to meet the deadline?
Interviewee: Completing the project in time was sometimes like a bad dream or nightmare. Things went wrong that we hadn’t expected and we needed technical consultancy. But the consultant was in the US and we had to wait 3 weeks for him to arrive.

Interviewer: But could you not communicate with him by video-conferencing?

Interviewee 4: Yes, we tried this but the technical consultant needed to come on site to understand the nature of the problem. I was worried that the project would overrun its scheduled completion date and that the company would incur a financial penalty"

Interview 12: (12IDcmRi)

"Interviewer: What kinds of problems did you face implementing the project?

Interviewee: The parts of the project allotted to me were quite straight-forward and not at all complicated. I knew what had to be done and the team was finished well ahead of target date. However, this part of the project had to align with other parts which overran on time so our project was also late as it depended on three other sub projects being in alignment. The overrun was not due to any fault on the part of our team, yet it made our part of the project appear to be late. When I tried to explain that our part of the project was completed ahead of schedule senior project management would not accept this and our team was equally censured with the others for the time overrun.

It is necessary to elicit responses from them which show how they view their roles and how they interpret for themselves what is success and what is failure. Thus, a qualitative approach, based on semi structured interviews is most appropriate. Quantitative studies, revealing the extent of success/failure have already been undertaken, Alfaadel et al. (2008). It is argued in this thesis that there is a need for a qualitative approach in order to discover the perceptions of key project managers and to understand how they view project planning as well

as the challenges they encounter in trying to meet time and budgetary targets,. for example:

Interview 6: (6fDirDa)

Interviewer: So was the project finished in time?

Interviewee: Yes, it was completed two weeks ahead of the deadline leaving us time to tidy things up and write up a report.

Interviewer: And did it complete within budget?

Interviewee: There was a slight overrun on the budget but only by about 2% to 3% and this is acceptable.

Interviewer: You must be relieved that the project was, therefore, a success.

Interviewee: Yes. But there was considerable stress especially when we fell behind schedule due to a number of faulty components that had to be replaced. My wife noticed that I was a bit tense and hard to get along with in these days. It was hard to get the project back on track and it meant everyone working late for three or four weeks. During these weeks I was under stress and my family hardly saw me. Catching up really placed a great strain in all our families.

4.6.2 Justification for adopting a Qualitative Approach

It can be argued that a quantitative method produces results that are supported by real facts and figures which put the matter beyond dispute. However, these results are rather general in nature. Admittedly, they can be based on representative samples which can then be generalised to the population. However, this type of data, while it is useful for identifying trends and preferences and, thus provides breadth to the study, qualitative methods are

more useful for in-depth investigation and the discovery of the human meanings attached to the phenomena under investigation. For example:

Interviewee 3: I love my work. My work is like my calling from Allah – its not just any old job – but the way that I live out my calling as a father of a family

The questionnaire is often the favoured instrument of quantitative methods. However, for all their claims to be able to reach the objective truth inherent in the phenomenon under investigation, questionnaires actually presuppose certain issues in the way the questions are framed. So, in designing a questionnaire, one is already to some extent, prejudging the issue. The very questions being asked are based on certain assumptions. The eminent founder of phenomenology, Edmund Husserl, has been highly critical of such assumptions as they already prejudge the issue of the objective reality of the phenomenon: “existence in the form of a thing is never demanded as necessary by virtue of its giveness” (Husserl, 1931 pp. 144 – 145) cited in Moustakas(1994, p.33). Thus, a critique of questionnaires is that there is already bias in the mind of the researcher, not only in the way that the questions are stated, but in the very choice of the questions themselves. Questionnaires, in providing multiple choice tick box responses, may actually limit the exploration of the phenomenon under investigation. They may miss out altogether on other aspects of the phenomenon which may not be brought to light simply because there was no question addressing that particular aspect. Informal or semi-structured interviews allow the respondent plenty of scope to explore the phenomenon in depth and in terms of what meaning it holds for the respondent. The ideal being aimed at in qualitative methods is to explore phenomena “freshly, naively and in a wide open sense” Moustakas (1994, p. 33).

In favour of a mixed method approach, it is often argued that this approach has the advantage of combining the strengths of both qualitative and quantitative approaches in one method. Attractive as that seems on first sight, there remains the problem of mixed epistemologies. The same researcher cannot be both a realist and an interpretivist with any consistency. The fact is that a researcher is committed either to an objectivist or subjectivist approach. There is also a potential problem that the findings of one method may fail to be corroborated by the findings of the other. The solution is often sought in terms of pragmatism, but this really evades the epistemological problem inherent in the mixed method rather than truly resolving it.

Thus, a qualitative approach is being adopted using a case study and semi structured interviews as data collection instruments. The focus of the semi structured interviews is to elicit responses from project managers regarding their perceptions of the effects of time and financial budgets on their performance.

In contrast with quantitative research methods, qualitative research is not a single, unified set of techniques or philosophies. Qualitative research is heterogeneous, as it has been derived from a wide spectrum of intellectual disciplines.

In qualitative research, significant attention is given to how people understand the world they live in, to personal and subjective meanings, beliefs, values, experiences, world views etc. The context within which individual participants live is very much the focus of qualitative inquiry. Additionally, unlike quantitative

methods where the researcher is a dispassionate observer or collector of data, it is implicit in qualitative research that the researcher is a research instrument and is actively involved in the research. The qualitative researcher aspires to draw on a rich diversity of sources of knowledge and methods of generating data which is often represented in texts or images. The approach is usually flexible and quite unlike the more linear designs of quantitative methods. The data of qualitative research is often in the form of rich description as in naturalistic observations or ethnography. For example, Interviewee 3 understood his role in the project on a wider canvas which included his family and fulfilling the will of Allah for him in his life. Qualitative methods may proceed from theories, but they are not theory driven as in the case of quantitative methods. Instead, they aspire to generate theory as is the case in grounded. In this current research, it is of interest to discover the human factors and meanings that key players attach to project success or failure and thus, to allow theory to emerge from such human accounts. Thus, a phenomenological inquiry was a possibility for this research, but finally, the researcher opted for semi-structured interviews but drawing on the strengths of phenomenology, particularly the “epoche” method, to overcome the influences of presupposition or bias on the part of the researcher. As Bryman put it, qualitative research is useful when we want to analyse social world from the point of view of those being studied (Bryman, 2004a).

In this piece of research, the aim is to take into account the views of the participants and to treat these in a serious manner. The researcher does not wish to separate what people say by way of response to the issues under investigation from the overall context within which these responses were given.

Thus, the case study of the NGHA will attempt a rich description of the context of the research. Causal theories can paint a picture of the overall trends presented by numerical data but do not inform us about why people responded or behaved in the way that they did. Nor do they illustrate for us what set of circumstances surrounded such responses and what inner thoughts were underlying their responses or behaviour Creswell (2007, p. 40). Thus, in semi-structured interviews, the researcher is aiming at listening attentively to the participants in a way which is exploratory rather than being bound by a set of prescriptive questions. The data which will be generated is not primarily numerical but consists of words, transcripts of the semi structured interviews, which need to be interpreted in the analysis stage of the research.

4.6.3 A Discussion of meaning in interpretive approaches

The interpretation and meaning being discussed here does not refer to the later analysis of the collected and processed data. Interpretation here refers to the data collection where there is a conversation between interviewer and interviewee which involves an interpretive response to the meaning of the content of that conversation.

It is important that the interviewer has a good understanding of the nature of the phenomenon being investigated, in this case, the world of IT project management with all its pressures to meet targets of time and financial budgets. Lonergan locates meaning within a context of intersubjectivity and it is this intercourse and exchanges among people in a community that leads to “the achievement of common meaning” (Lonergan, 1990, p. 79).

This idea of intersubjectivity was taken a stage further by the French philosopher Jacques Derrida when he asserted that meaning is derived from “difference” which in French has two connotations; the first implies opposition and the second implies the act of deferring. Thus meaning involves conflict or opposition, but it also involves, at some stage, the act of deferring or giving way. An example would be getting to the meaning of the word “cat”. A dictionary definition is possible but often, Derrida claims, we learn more about “cat” by understanding what it is not rather than what it is. Thus a cat is an animal which is neither a dog, nor a horse, nor a rabbit etc. (Derrida, J. 1982, pp.1 – 28).

4.7 Methods

The judgment in favour of a case study supported by semi-structured interviews to generate data was founded on the conviction that these instruments were most suitable for answering the research questions. The context of the study, the Kingdom of Saudi Arabia and the NGHA, have been presented in Chapter 3 and this has set the stage for the inquiry so that the reader can understand the specifics of the problem in great depth.

4.7.1 Case Study

The first method will consist of a case study of IT projects in the NGHA

4.7.1.1 Rationale for this case study

Conventional wisdom has tended towards the exercise of caution when making generalisations based on the findings from case studies which were considered to be case specific and context-bound Flyvbjerg (2006).Some writers only regard case studies as suitable forms for pilot studies aimed at generating

hypotheses. These writers see case studies as supportive to another method rather than being proper research methods in their own right. Other writers argue that because they are overly subjective and run the risk of observer bias, the validity of case studies is often in doubt (ibid. p. 219). For example, Dogan and Pelassy (1990) expressed this objection in the following terms:

> "One can validly explain a particular case only on the basis of general hypotheses. All the rest is uncontrollable, and so of no use" (ibid. p. 121).

Flyvbjerg (2006) argues that the position that case studies are problematic due to issues of theory or validity is one which fails to understand their importance for learning. It is precisely due to the context specific nature of case studies that they become valuable for learning. For example, a study of asylum seekers that is statistically based may be useful for grasping the extent of the problem. Again, interviews with asylum seekers can reveal more in-depth knowledge based on their narratives of why they have migrated and attempted to seek asylum elsewhere. However, even interviews present some problems as the individual may be fearful of disclosing information as this might be perceived as injurious to their attempt to gain refugee status and the right to reside in the country to which they have fled. Asylum seekers are vulnerable persons and so may be reluctant to disclose information and their real feelings. A case study of an individual asylum seeker over a period of time may reveal much more valuable information which can be generalised as it will not be reliant on self-disclosure alone but will be evidence-based through observation and other independent sources of information. Thus, case studies put the researcher in touch with the lived experiences of people and their relationship with the phenomenon under investigation. Dreyfus and Dreyfus (1986) have referred to

studies of real lived experiences as being in touch with “true human experts”. Flyvbjerg (2006) comments on how phenomenological investigations into the learning process have emphasised the importance of studies focused on individual cases:

> “It is only because of experience with cases that one can at all move from being a beginner to being an expert. If people were exclusively trained in context-independent knowledge and rules, that is, the kind of knowledge that forms the basis of textbooks and computers, they would remain at the beginner’s level in the learning process.” (ibid. p. 222).

Due to the fact that a case study can generate rich data drawn from multiple sources such as observation, documentation, reports, government policies and, most significantly, the intimate involvement of “true human experts”, case study approaches to research have become much more prominent in recent years.

There is a view that emphasis should be placed on how surveys, experiment design and random assignment methods have generally declined or remained static as a percentage of research methods in use while the ratio of case studies has continued to steadily increase from the mid-1980s onwards.

4.7.1.2 Definition

A case study can be defined as a strategy of research which involves an empirical exploration of a phenomenon within its specific context by drawing on evidence gleaned from a variety of sources (Yin, 2003; Saunders et al, 2009). Creswell (2003, p. 15)stressed the time-bound nature of case studies and stated that their focus might vary between a programme, an event or one or more individuals studied in-depth over a period of time. Similarly, Silverman

(2011, P. 16)) includes the dimensions of a particular space and time alongside the sociocultural context in defining the method. All the essential elements of a comprehensive definition are provided by Gillham (2005, p. 1) as:

- “a unit of human activity embedded in the real world
- which can only be studied or understood in context
- which exists in the here and now
- that merges in with its context so that precise boundaries are difficult to draw”

4.7.1.3 Appropriateness of a Case Study in the research context

A case study, then, was appealing to the researcher due to its potential as a method to gain a rich understanding of the context of the research namely, IT projects in the NGHA in Saudi Arabia. Xu and Meyer (2013) have commented on how context of a developing economy can prove to be a “laboratory” for testing established theories based on developed economies against a local context leading to a refinement, or even the evolving of a fresh theory. Theoretical assumptions which are derived from relatively stable developed economies can often be probed and challenged by what emerges from research in the context of a developing economy. Through the case study approach, the researcher who is a participant observer in the NGHA, tested the assumptions underlying the success/failure factor approach within the Saudi context in order to evaluate them in the context of a developing economy. For this purpose, a case study approach was most suitable for finding in-depth, nuanced answers to the research question. Conducting a case study to evaluate existing theories or hypotheses is supported by Eckstein (1975) who, contrary to the conventional wisdom that case studies were only useful for generating

hypotheses, strongly asserted that case studies could be useful for testing hypotheses.

Yin (2014, pp. 3 - 5) strongly recommends that, before proceeding with a case study, an assessment should first be made to establish whether this would be an appropriate strategy of inquiry in a given context. One of the criteria proposed by Yin (ibid.) it that the original research questions should be of the type that pose ‘how?’ and ‘why?’ questions which are appropriate for probing in-depth explanations as is the case with this research. The second criterion is that the phenomenon under investigation should be explored in its natural setting and not be manipulated as in scientific experimentation. Thus, on Yin’s (2014) second criterion, the choice of case study is justified.

This research is based on one case which is IT projects in the NGHA and the NGHA with its own features and culture provide a rich context for the study.IT solutions are applied across all the constituent hospital in different locations and these are governed by one over-arching IT programme which aligns the individual hospitals. The researchers work is situated in the Communications Department in the medical city in Madinah. The case can be the entire organisation, or single departments within the larger organisation Yin (2014, p.33). Thus, defining the case in this study as recommended in Yin (2014, pp. 30 -34), the case concerns IT projects in the NGHA in Saudi Arabia.

4.7.1.4 Generalising from a single case

A cogent argument for the study of a single case which can then be generalised has been put forward by Giddens:

> “ Research which is geared primarily to hermeneutic problems may be of generalized importance in so far as it serves to elucidate the knowledgeability, and thereby their reasons for action across a wide range of action-contexts.” Giddens (1984, p. 328).

But how, precisely, can a single case be taken as a type of other members within the category in question? This question, provoked by Giddens’ observation, is reminiscent of the older philosophical problem often referred to as the problem of “the one and the many”:

“One of the most basic and continuing problems of man's history is the question of the one and the many and their relationship. The fact that in recent years men have avoided discussion of this matter has not ceased to make their unstated presuppositions with respect to it determinative of their thinking.” (http://chalcedon.edu/topics/philosophy/).

A useful approach to addressing the issue of “the one and the many” as it impinges on the problem of generalizability from one case is presented in Flyvbjerg (2006) in discussing the issue of selecting a case to study.

4.7.1.5 Strategies for the selection of a case or sample

The next question focuses on the particular strategy used in selecting a single case, the study of which would yield a plenitude of information and evidence relating to the phenomenon under investigation. Flyvbjerg (2006, p. 229) argues that a representative case or random sample might not be the optimal strategy as an average might be just “average” and so would not yield very rich data. In fact, Flyvberg argues, an atypical case might be more useful as “it could

activate more actors and more structures and systems for exploration" (ibid.). Studying an atypical case could be more fruitful in reaching deeper root causal explanations and their repercussions rather than noting phenomena and the frequencies of their occurrences which may, in the end, amount to little more than describing the symptoms rather than the causes of the matter under investigation.

Flyvbjerg (2006) classifies the various strategies for selecting a case or sample in case studies which are predominantly information-oriented as in this research. These are presented in Table 4.3 (See Below).

Table 4.3 Strategies for selection of cases in information-oriented studies

Type of Case Study Selection Strategy	**Aim**
Information-oriented selection	To maximise the utility of information from small samples or single cases. Selection is on the basis of expected information to be derived
1. Extreme/Deviant cases	To obtain information on the basis of unusual cases either problematic or exemplary
2. Maximum variation cases	To obtain information about the significance of various circumstances e.g. cases that are different on one dimension: size, form, location, budget

3.	Critical cases	To obtain information that permits deductions of the type: “if this is valid/not valid for this case, then it applies to all cases
4.	Paradigmatic cases	To develop a metaphor for the domain that the case concerns

Adapted from Flyvbjerg (2006, p. 230)

1. The extreme or deviant case can provide evidence for emphasising a particular point in a dramatic fashion. Flyvbjerg (2006, p. 229) offers Freud’s (2003) “Wolf-Man” and Foucault’s (1979) Panopticon as examples of this type of case study.

2. Maximum variation cases refer to those cases which stand out on one particular dimension or criterion

3. Critical cases are those which have a strategic importance in relation to the whole matter under investigation. For example, in tracing the causes of a certain illness, selecting a clinic noted for its high standards of hygiene would lead to this clinic being a critical case, as if the illness continued to spread in this clinic, it could be deduced that it would spread in any situation and that ward hygiene was not an issue. Conversely, if the disease ceased to spread in these conditions, then ward hygiene could be identified as a causal factor for the spread of the disease.

Considering either the most or least likely example can be a useful strategy for selecting a critical case.

Flyvbjerg (2006) offers a classical model case study for a least likely and most likely case. Michel's (1962) study of oligarchy in organisations was based on a horizontally structured company which had a democratic style of leadership and so was a "least likely" case of being oligarchic. By choosing a least likely case Michel would be able to conclude that if this organisation proved to be oligarchic, then, a fortiori, most others must be also.

An example of a "most likely" case offered by Flyvbjerg is Whyte's (1943) study of a slum neighbourhood in Boston, which, according to accepted social theory at that time, should have exhibited social disorganisation. Whyte found quite the opposite and, thus, was able to call the existing theory into question. Thus, a most likely case is particularly useful for the negation of a proposition, just as a least likely case is appropriate for confirming a theory. Depending on how the original hypothesis was formulated, Whyte's slum neighbourhood study could be a least likely case if the hypothetical proposition was that social organisation was a universal phenomenon.

4. A paradigmatic case is based on the work of Kuhn (1978), who explained the origins of scientific revolutions by the emergence of paradigms or exemplary cases which become prototypes. Foucault's study of a European prison can be regarded as a paradigmatic case or a predictive

> theory. However, as Fryvbjerg (2006, p. 232) points out, there is no predictive theory for how a predictive theory comes about and, consequently, there are no rules or principles for identifying a paradigmatic case. No standard exists for a paradigm as it sets the standard for all other cases of the same type. Thus, choosing a paradigmatic prototype can be highly intuitive and not dissimilar from how one recognises a painting or poem as an outstanding example of its type.

Evidence was compiled based on IT project planning and implementation within the NGHA to evaluate it as a paradigmatic case of IT project planning and implementation generally in developing countries. This is based on its having received a most prestigious award as a shining exemplar of IT project implementation in the Middle East. Xu andMeyer's (2013) argument for case studies in developing countries as "laboratories" for testing and refining assumptions drawn from studies from developed economies will serve as the backdrop for approaching the NGHA in Saudi Arabia as a paradigmatic case of IT project implementation in a developing economy.

Having decided that a paradigmatic type case study was appropriate for this research, attention is now given to the design of the case study.

4.7.1.6 Case Study Designs

Case study designs are generally categorised into four different groups arranged across a twofold classification, i.e. single or multiple cases and whether the cases are holistic or embedded as presented in Figure 4.3:

Fig. 4.3The four types of case study designs

Single Holistic Multiple Holistic

Single Embedded Multiple Embedded

Adapted from: Yin (2003, pp. 54 – 67**)**

The particular type of case study design adopted is dependent on the the research questions.

Five conditions for adopting a single type are proposed by both Yin (2003) and Bryman (2012) provide five conditions under which a single design can be adapted. A single design is one which satisfies one of the following five conditions:

1. the case is a critical case
2. the case is a typical case,
3. the case is a unique case,
4. the case is an extreme case
5. the case a longitudinal case.

Flyvbjerg (2011) states that a case strategically selected may only require the use of a single case design. In contrast, a multiple case study design draws on two or more cases (Yin, 2014). The argument which favours a multiple case

design is that such a design choice would strengthen the validity of the findings by providing an even richer narrative describing the phenomena under investigation. However, Flyvbjerg (2011) cautions that a multiple case design could simply be a waste of time and cost. Accordingly, this research follows Flyvbjerg (2011) by selecting a single case based on the powerful arguments presented earlier in favour of the validity of data obtained by means of a single case study (Yin,2003; Creswell, 2007, Giddens, 1984).

The second categorization is based on either 'holistic or embedded' designs. Case studies that deal with individuals are described as being holistic cases; hence the unit of analysis in such cases are the individuals. However, the embedded case studies involve more than one unit, or object, of analysis and usually are not limited to qualitative analysis alone. The multiplicity of evidence is investigated, at least in parts or subunits, which focuses on different salient aspects of the case. In an organizational case study, as in this research, the main unit may be a department as a whole, and the smallest units may be departments or even groups of individuals, such as customers and employees. Likewise, the researcher here maintains that since the case is based on managers and employees, the case study adopts an embedded design.

Furthermore, based on the explanation provided above, this researcher maintains the choice of a single embedded case design, as the details can be generalised to multiple cases and allows the reporting of complex dynamic and unfolding interactions or events, human relationships and other factors in unique situations. The depth of the personalised and contextual detail gathered

from the case study allows analysis of the complexities of relationships, context, experiences and beliefs of each of the case study participants.

4.7.1.7 Justification for the Case Study Strategy

As mentioned earlier, the case study strategy is an empirical enquiry that seeks to explore a contemporary phenomenon in a real life context (Yin, 2003). Likewise, this research seeks to explore the twin concepts of project success or failure in a real life context of implementing IT solutions to support healthcare. Consequently, the case study strategy is ideal for the exploration of processes and procedures instead of outcomes with respect to a particular phenomenon. While outcomes are also accepted by researchers, the argument is that a case study strategy provides a rich account of how those outcomes are achieved (Denscombe, 2010). Relating this to the current research, it can be seen that the main crux of the research is its interest in exploring how the various processes, practices and attributes based on documentary evidence are perceived and implemented in practice by senior and middle managers. This argument can also be related to the first condition for selecting a case study by Yin (2003) where it is stated that the concern is with solving the 'how' and 'why' questions which is process based. Another justification as to adopting the case study strategy is based on the argument that the researcher has little control over events (Denscombe, 2010; Yin, 2003).

For this research, the researcher is primarily concerned with studying the phenomenon in its natural environment and does not see it feasible to try to change the phenomenon within the environment. The case study strategy is also selected, because in comparison with other strategies, it is an in-depth

study of a particular case which allows the researcher to delve into things in more detail and discover things that might not have been apparent with other strategies (Denscombe, 2010). Finally, the case study strategy is argued to be used as it utilizes the use of multiple sources of evidence such as interviews, documents, observations, thereby improving the validity of the study.

4.7.1.8 Unit of Analysis

The unit of analysis within a case study is related to the fundamental problem of defining what the “case” is; this could be an individual, an event or an entity defined by the researcher (Yin, 2003; 2009). According to Yin (2003), the unit of analysis and the case are related to the way the researcher(s) define the initial research question(s). The research questions in this study involves exploring the success and failure factors for IT projects in the NGHA. As a paradigmatic case approach is being adopted for case selection, this will necessarily involve an intuitive approach in the initial stages but soon supported and amplified by different types of evidence.

However, the purpose of this study limits the information required from managers and employees to their perceptions, understanding and beliefs of practices, processes and attributes involved in project planning and implementation. Therefore, the unit of analysis for this research is the IT projects implementation of the NGHA in Saudi Arabia.

4.7.1.9 Number of Cases

According to Eisenhardt (1991, p. 622), the appropriate number of cases will depend on how much is already known and how much new information is likely

to be learned from incremental cases. Generally speaking, multiple-case designs with four to ten cases are considered adequate; after this, it can be difficult to cope with the volume and complexity of the data (Eisenhardt, 1989). However, given that a paradigmatic case strategy was considered to be appropriate, one exemplary case was studied in this research supported by semi-structured interviews at each of the other IT departments.

4.7.1.10 Sampling

Sampling primarily refers to a technique that permits a researcher to reduce the amount of data to be collected, by considering data only from a sub-group rather than all possible elements (Bryman, 2012). Sampling techniques can generally be classified into two types, and these are: probability sampling and non-probability sampling. For a qualitative research such as the current study, the non-probability sampling technique will be the more appropriate type.

Under the non- probability sampling technique, samples are typically selected based on the subjective judgement of the researcher. These include: quota sampling, criterion sampling, purposive sampling, snowball sampling and theoretical sampling (Robson, 2011). In this research, purposive sampling was used in that individuals in key positions such as project managers were specifically targeted for the reason that these individuals were well placed to be able to provide rich data to address the research questions.

Purposive sampling is a term used to describe the strategic and purposeful selection of information rich cases, with the goal of making sure that the selected sample provides the necessary depth but at the same time meets the

goals of the research, preferably with a high degree of breadth (Patton, 2002). It is a technique used when the sample of cases is very small and as such it can be referenced to case study strategy. The goal of purposive sampling is to sample cases in a strategic way, so that the sample is relevant to the research questions that are being posted (Bryman, 2012). The selected cases are often judged according to the purpose of the study and to their relevance in answering the research questions on the phenomenon under investigation (Patton, 2002). Hence, it is a common sampling strategy in qualitative research and seeks cases rich in information which can be studied in great deal about issues of central importance to the purpose of the research. For this research another reason for the choice of purposive sampling is its ease of access to participants. The sample population was the 5 regional IT departments of medical centres in the NGHA in Saudi Arabia

4.7.1.11 Data Collection

Crotty (1998:3) defines data collection as: “the techniques or procedures used to gather and analyse data related to some research questions or hypothesises”. Yin (2003) identifies six sources of evidence for case studies: documents, archival records, interviews, direct observation, participant observation and physical artefacts. Among these, a boundary will be drawn around three methods to be used in the current research which includes: semi structured interviews, direct observation and document analysis (Yin, 2003).

Each branch of the NGHA was visited by the researcher. These branches were located in Riyadh, Jeddah, Madinah, Al-Hassah and Dammam. Prior to each visit, the researcher had acquainted himself with the particulars of each centre,

each project associated with each centre, facts from reports and accounts of progress of IT projects. The interviews were arranged to coincide with the visits. Three persons were interviewed at each location except for Dammam where only two interviews were held. The researcher had to make return visits to Jeddah and Al-Hassah as in each case one interview had to be re-arranged as the interviewee was not available at the time arranged. Such incidents added to the cost and time allocated to each stage of the research.

Interviews with some of the interviewees were carried out through the medium of Arabic as these interviewees were less comfortable being interviewed through English. This meant that six recordings had to be translated into English prior to writing up the transcripts.

Aspects of the collection of data are discussed further in the following sections.

4.7.1.12 Semi – Structured Interviews

"The qualitative research interview is a construction site for knowledge. An interview is literally an inter- view, an inter-change of views between two persons conversing about a theme of mutual interest" (Kvale, 2006, p. 14). Qualitative interviews are effective research instruments for obtaining deep insights into how people experience, feel and interpret their social world (Dawson, 2002). The research methods literature (e.g. Creswell 2014) generally identifies three different forms of interviews (structured, semi structured and unstructured interviews), with the semi-structured type being the most prevalent in qualitative research Dawson (2002). In semi-structured interviews, the researcher has a set of issues which are to be explored, although it can often happen that new issues emerge that were not previously anticipated. These

interviews are characterised by their informality and flexibility and the interviewer is not constrained by having to adhere to a set order in addressing the issues Saunders et al (2009). Semi-structured interviews present the researcher with opportunities to ‘probe’ for more detailed information and clarification, unlike structured interviews which follow a much more rigid approach. Research design issues related to semi-structured interviews are presented in more detail in section 4.7.2

Eight interviews were held on site in a common room at the request of the interviewees. Three interviewees were not comfortable being interviewed on site and preferred the more neutral setting of a coffee shop. The remaining Three were quite relaxed about the interviews taking place in their offices and had asked their secretaries to ensure that they were not disturbed. Consideration was given to the fact that this was not neutral territory and this might have placed some constraint on what was disclosed. However, this was not as serious an issue as it might appear to be at first sight as the project manager was also being interviewed in addition to assistants and supervisors.

Each interviewee was asked if they had any objection to the interview being sound recorded. The researcher gave assurances that the tapes would be stored securely and that transcripts would only be accessible to the interviewer who would personally oversee their destruction at the end of the research. Despite such assurances, the researcher noted that many of the interviewees were apprehensive about being interviewed. Two of them would only be interviewed provided the researcher took notes rather than sound recordings.

As mentioned in the previous section, additional journeys were required in order to interview two interviewees who were unable to keep their appointments.
The researcher gained some insights into interviewing skills and had to quickly learn how to keep the flow of the interview and to gently steer the conversation back to the subjects at issue.

Issues that were explored included roles and responsibilities, the effectiveness of delegation in the NGHA, how each stage of the project was aligned to the overall aims and objectives, issues related to budget and time targets and any other personal observations. For example, the main issues that were explored covered four main areas from which open-ended questions were derived. These are set out below:

1. **Demographics**: e.g. Name, position in organisation, education and gender
2. **The organisation involved in the implementation of the IT Project** e.g. Name of the organisation, how many previous contracting arrangements the company was involved in, whether outsourcing of contactors for the project implementation had taken place either wholly or partially.
3. **The Nature of the Project and, more importantly, the factors and reasons for success or failure for IT projects**, e.g. using process of bidding to select a suitable organisation, factors that constrained the implementation of the project in the organisation, Do Islamic and cultural values such as relationships, trust, commitment, and respect affect the implementation of the projects? Importance of planning for the success

of the project, the similarities between project failure in the organisation and the other public sector organisations; were training and development topics considered as essential for effective project implementation?

4. **Additional information**: Is there any other information which you feel you feel might be related to this study?

Each participant was asked whether they wished to receive access to the summary results and report. The reason for making this offer relates to Reflexivity in section 4.5.1 where feedback was seen as an aid to establishing validity Alvesson and Skoldberg (2009, p.273). Participants were invited to send their feedback on the summary report. It was interesting that 12 of the 14 participants were willing to receive the reports of the findings and to give feedback (see Appendix 1).

Up to two hours was allocated for each interview though the time greatly varied from 34 minutes to 78 minutes. The mean interview time was 48 minutes.

4.7.1.13 Direct Observation

In fact, visiting the field to collect the data through other evidence, i.e. interviews, creates an opportunity to make direct observation (Yin, 2003). Patton (2002) identifies several advantages of using the direct observation method. This technique enables the observer to: understand and capture the setting within which people interact; see and discover things that people in the location have not paid any attention to; get things that people will be reluctant to talk about in an interview, i.e. critical issues; goes beyond the selective views of people (i.e. participants in interviews); being open; inductive and discovery-

oriented to help the observer obtain great experience about the phenomenon. Direct observation also has the advantage of finding information from natural or unplanned events.

However, the direct observation method also has some limitations, including: the distortion of data because people's behaviour is subject to change particularly when they feel that they are being observed; information is limited to what is observed in the setting; the observation only focuses on the external behaviour as the observer cannot explore people's feelings and perspectives (Patton, 2002).

In fact, using the interview technique in this study will help the researcher to undertake a walk-through direct observation method as a source of evidence and data collection for the present study.

4.7.1.14 Document Analysis

A document is any substance that gives information about the investigated phenomenon and exists independently of the researcher's actions. It is normally produced for specific purposes other than those of the research but it can be used by the researcher for cognitive purposes, e.g. letters, newspapers, diaries and websites (Corbetta, 2003). Yin (2003:87) asserted that "for case studies, the most important use of documents is to corroborate and augment evidence from other sources". Corbetta (2003) identifies a number of advantages for the use of documents over other research methods. (a) It is a non-reactive technique where the information given in a document is not subject to possible distortion as a result of the interaction between the researcher and the

respondent, e.g. as in interviews; (b) it helps the researcher to study the past; (c) it is a cost-effective method as the information has already been produced (Denscombe, 1998). However, documents may have some limitations in terms of the accuracy and completeness of the data (Patton, 2002).

In the present study, a number of documents will be critically analysed, including: It projects general reports; other publications; and the websites of local branches of the NGHA included in this study. Such documents will be of great value to examine the phenomenon from different angles and enrich the researcher's knowledge about the practices, attributes, processes and culture of the NGHA. This method has also enabled the researcher to highlight and pursue any contradiction in the evidence emerging as a result of the inconsistencies between the data obtained from the documents and the interview data.

4.7.1.15 Data Analysis

This research advocates for the analysis of text and other forms of data proposed. The main presentation of the data will be in text format with the audio record format converted into text. According to Creswell (2007), the analysis of data in qualitative research entails the preparation and organization of data for analysis, this includes the reduction of the data into themes through a process of coding/categorizing (Saunders et al, 2009; Denzin and Lincoln, 2005) and classifying the codes prior to finally representing the data in figures, maps etc. It is argued that the process detailed above is a representation across all qualitative data analytical techniques (Saunders et al, 2009). However, Creswell (2007), states that every strategy has a different analytical technique and

approach to inquiry. What this means is that the grounded theory strategy will have its preferred analytical technique for analysing data; likewise the case study will also adopt specific approaches to analysing data.

The first phase of analysis entails transcribing the raw data (most times in the form of audio-recordings or photographs). Transcribing is the process of converting the data from audio recordings into written text format. It can be done manually (by listening to the recordings and typing down) or automatically by using computer aided software to convert the audio-recordings into text. However, in preparation for analysis, it was imperative that the sources of data were validated. Furthermore, this research ensured that the data was free of typographical errors and, where such existed, these were rectified.

The second phase involves the use of qualitative analysis process for research. The processes argued to exist include categorization of meanings, summarization of meaning and structuring of meanings using narratives (Saunders et al, 2009). However, for the case study strategy, the summarization of meanings and the categorization of meanings is enough to suffice. The use of both processes here as compared to just categorization of meanings is borne out of the fact that the case study strategy advocates for multiple sources of evidence (Yin, 2003) and as such, the document based data will be analysed through summarization of meanings.

4.7.1.16 Summarization of Data

Summarization of data involves compressing the meaning of large amounts of text into fewer words. This allows a researcher to identify key points and themes that may need to be explored later or presents itself as an important finding. For

the primary data, summarization allows the researcher to become conversant with the principal themes that may have emerged from the interview and how the researcher will like to explore the themes further in the forthcoming data collection sessions (Saunders et al, 2009). Summarization is more useful when doing a secondary data analysis. In sorting out a document, it is always important to produce a summary that provides a list of key points, which also describes the purpose of the document, how it relates to the researcher's work and why it is significant (Saunders et al., 2009).

4.7.1.17 Categorization of Data

Categorizing data according to Creswell (2007) involves two processes. These processes are: developing codes and classifying the data. According to Robson (2011), codes refer to the most basic segment or element of the raw data or information that can be assessed in a meaningful way regarding the phenomenon. The identification of codes was guided by the purpose of research as expressed through the research questions and objective. To code, the researcher must be thoroughly familiar with the data available and have a first set of ideas about what is in the data and what the researcher feels is interesting and important. The analysis, codes and categories are presented in Chapter 5.

The next phase is the classification of data; this is same as the identification and generation of themes. Themes are abstract constructs that researchers identify before, during and after data collection. Apart from the transcripts/data, themes are also argued to be generated from the literature review (Ryan and Bernard, 2000). What this means is that both the generation of codes and

themes can exist through the use of an inductive or deductive approach (and in some cases both approaches) in analysing data. Saunders et al (2009) argues that in real life research, it is almost impossible to use a purely inductive approach (apart from when doing a grounded theory strategy). As such inductive qualitative research consists of some form of guidance or proposition which directs the study. According to Robson (2011), this phase occurs principally after the coding has been completed with a list of codes identified. Themes are argued to represent an aggregation of different codes whose combination tells a much broader story of the research. It was expected for this research that as the process of coding was being performed, certain themes would start to appear abstractly. These themes are presented in Chapter 5.

4.7.1.18 Cross Case Synthesis

The cross case synthesis technique is especially suitable for case studies with multiple case designs (Yin, 2003; Creswell, 2007). Yin (2003) argues that the analysis of a case study is likely to be more robust and easier when the case study consists of more than two cases. Under cross case synthesis, each individual case study is treated as a separate study, however, it does not differ from other synthesis approaches (e.g. cross experimental) where findings are aggregated across a series of individual studies. The cross case synthesis technique involves creating world tables that display the data from the individual cases according to some uniform framework where similarities and differences can be sought out amongst the cases. After the word tables have been created, the analysis can start to probe whether different groups of cases appear to share some similarity and deserve to be considered as the same type of general case.

Even though Yin (2003) argues that the trio of the analytical techniques (pattern matching, explanation building and cross case synthesis) can be used for analysis of multiple case designs, this research adopts the use of the cross case synthesis as the analytical technique. The first reason lies in the use of the first two techniques. Both techniques (pattern matching and explanation building) are argued to be more appropriate for use when using a deductive approach to the research. However for this inductive exploratory research, their functionality is not feasible. Moreover, Yin (2003) argues that the cross case synthesis technique is the most appropriate technique when using a multiple case design and it is argued that the cross case synthesis technique can be used for the inductive exploratory approach.

4.7.1.19 Ethical Considerations

Ethics is concerned with the principles of right conduct in any situation and the avoidance of malpractice at every stage of the research, particularly during data collection in the field, data analysis and dissemination of the research findings Creswell (2007). The researcher has endeavoured that the methods and findings of this research should not cause harm or disadvantage to the participants. Ethical approval from the University of Bradford has already been granted and the researcher endeavoured to ensure that the good name of the University would not be brought into disrepute by any aspect of this research.

Permission was properly and respectfully sought from the Training and Development Department of the NGHA. A brief explanation of the research and its objectives was presented. This meant that the researcher was authorised to approach the various departments in the course of the research.

All participants were assured that their contributions would be held in strictest confidence by the researcher. Participants were reminded of the limits of confidentiality and that disclosure of any criminal matter would obviously not be covered by confidentiality. Also, participants were assured that reporting would be achieved in a fully anonymous manner by which no individual could be identified.

Once data was collected in written or audio formats, the recordings were held in a secure place by the researcher. Online material was password protected. Only the main researcher had access to the locked cabinets or was in possession of passwords to online material.

Data is held securely in accordance with the requirements of the University of Bradford and in compliance with the Data Protection Act. At the end of the research, sound recordings and paper records will be securely destroyed.

Each participant was requested to sign the written consent form indicating their willingness to participate in the research. However, they were reminded of their right to have their data removed from the research within a period of a month. They were reminded that after a month it might not be easy for the researcher to remove their data as analysis would have commenced.

The outcomes of the recommendations from this study are expected to be beneficial for all involved in IT projects

Section 4.5.1 and Table 4.1 outlined the process to be followed by this research and included feedback from participants as a strategy for strengthening validity. It is intended to send a brief summary of a draft of the research findings and

recommendations in order to elicit their feedback as part of the validation process. At the end of the research, a letter of thanks will be sent to each participant and any other person who had a key role to play.

4.7.2 Semi-structured Interviews

Semi-structured interviews are designed in such a way as to give great scope to the interviewee to seek to emphasize the attempt to let the interviewees to talk about their experiences by means of addressing open ended questions which do not allow for simple “yes” or “no” responses but try to elicit from the interviewees greater depth of insights. Semi-structured interviewees could be regarded as the happy medium between unstructured interviews, at one end of the continuum and structured interviews at the other end.

Unstructured interviews can be difficult and call for great skills on the interviewer’s part. This almost “free association” of ideas approach has its value and place in research and can sometimes be used in phenomenological inquiries where the interviewer tries to avoid any presuppositions which might introduce bias into the data and affect validity.

Structured interviews are really similar to questionnaires except that the interviewer asks questions in a very structured way without deviating from the set of questions and instructions. In effect, it can often appear to be like being talked through a questionnaire. Where the interview is very tightly structured in this way, the instrument actually becomes a quantitative one and could be analysed by statistical methods.

In between lies the semi-structured interview and its great strength lies in its great flexibility. The questions are open-ended and allow the interviewees great

scope in being as descriptive as they wish in their responses. Rather than a formal set of questions, the interviewer simply has a number of issues that she/he wishes to explore or investigate. The interviewer allows the respondents to elaborate on their responses and the issues often do not require the interviewer to stick to a set order. The ideal would be to allow the data to come quite freely without any manipulation on the interviewer's part. The interviewer should have some prior experience of interviewing and have developed a sixth sense of where the respondent might still have more to say. The interviewer should not be ticking boxes but should be listening attentively and be able to sense from non- verbal cues and body language that the interviewee may have yet more to say on a particular issue. The importance of non- verbal cues such as posture, hand-movements, eye-movements, facial expressions etc. are so important that Thomas (2009) argues that the researcher should become immersed in these in order to appreciate subtle nuances in what is being said. So phrases such as "how did you feel about that" or " are there any other aspects of this phenomenon that you would like to bring to our attention or comment on?" Picking up on body language and emotional responses as well as the choice of diction in describing situations and interpreting the realities which are embedded in the language used (Corbetta, 2003) should enable the researcher to tune into the lived experiences of project managers as they often struggle to keep their project on target in terms of time and cost restraints.

On the other hand, a balance must also be struck between allowing the interviewee too much scope so that some essential issues never get addressed as planned as the interviewee rambles on or gets bogged down in one particular aspect of the problem. Some interview skills and techniques can be

learned by observing the presenter on a political forum on television and how he presses the question home and does not allow the interviewee to get off the hook. However, semi-structured interviews in research are not intended to become confrontational like political panels and should be conducted in a friendly and informal manner (Creswell, 2007). Nevertheless, they can help the interviewer acquire skills of knowing when to push the respondent gently to say more but equally, how to interrupt when it is necessary to do so to avoid the interview getting stuck on one or two issues.

However, the open-ended nature of the questions in semi-structured interviews does not imply that the questions are vague and authors such as (Denzin and Lincoln, 2005) emphasise that the questions should be clear and understandable openings for the respondent to reveal how they see the world. Additionally, it is possible for the interviewee to ask questions of the interviewer where clarification of issues is required. This type of interview has the potential to provide rich sources of data for interpretation (McQueen and Knussen, 2002).

Nevertheless, (Silverman, 2005) cautions about how interpreting the various meanings in interviews is difficult as they do not give the interviewer direct access to the factors or phenomena being investigated. Silverman (2005) comments further that the interview data does not reveal people's actual experience but only representations of that experience. This verges on the issue of validity but one solution put forward by Cresswell (2013) is to assess the value of the researcher's interpretation against the weight of expert opinion in the literature.

The foregoing has drawn attention to a potential problem with the interpretive approach, that is, the danger of interviewer bias in interpreting what the respondent is saying (Scollon et al., 2003). On the one hand, there is a need for the interviewer to get behind the literal meaning of what is being said in order to find its deeper or intended meaning (Blaikie, 2000). Nevertheless, the researcher needs to be aware of the danger of prejudging what is being said and of reaching conclusions at too early a stage.

Mason (2002, p. 62) advises that since knowledge in qualitative research is always context specific, the researcher needs to ensure that "relevant contexts are brought into focus so that situated knowledge can be produced" However, the interviewer was aware that data from interviews are reliant on the participants' abilities to interact, verbalise, conceptualise and remember Mason (2002). Participants' stories must always be understood as presenting reality from their points of view and can be hampered by professional expectations of what should or should not be said Charmaz (2006).

It is anticipated that, following the analysis of the IT project failures in Chapter 3, some issues will require probing in greater depth and this will be accomplished by means of qualitative semi-structured interviews involving a sample of project managers and other stakeholders. The qualitative analysis will be followed by a process of combining the findings in such a way that the interview data analysis will serve to support and add some depth to the findings from the IT projects investigation. The final stage of the research design will be to select what emerges as the key issues which will be recommended for an improved framework.

The appropriateness of semi-structured interviews for in-depth exploration is well supported e.g. [Bryan (2004), de Vaus (2001), Denscombe (2010), May (2011), Robson (2011), and Silverman (2011)]. They will also present the interviewer with opportunities to seek clarifications or to push questions a little further. Another approach could be to use focus groups which would have the advantage of in depth exploration but with larger groupings. This would be difficult to implement due to the difficulty of project managers being available for such group meetings. Equally, phenomenologically-based approaches could be considered for probing, for example, the human meaning and essence of project planning with all of its pressures and constraints on the manager to complete in time and within budget. However valuable these insights might be, however, they could detract from the main focus of this research.

4.7.3 Analysis of the Data

This section discusses how the data was organised into a coherent scheme in preparation for the analysis. Data from the case study was set forth following a template for arranging the data in a way which would facilitate its presentation and interpretation. The interview data was extracted from sound recordings and written up into transcripts. A thematic analysis approach was then followed to reduce the large amount of data into more manageable themes and categories. The analysis of each stage of the process is set out in the following sections.

4.7.3.1 Case Study Interview Data Transcripts

Some of the interviews had been sound recorded and these were then transcribed into written documents. The notes from the remaining interviews were then written up and the entire interview data was collated. Each interview

transcript was read twice with convenient time breaks in between the various readings. The purpose of this stage of the analysis was to allow the researcher to become intimately familiar with the contents of the interviews.

4.7.3.2 Thematic Analysis of Interview Data

Initial coding is kept as open as possible and includes chunks and phrases. This produced many codes that needed to be synthesised. Then, focused coding involved selecting the most frequently occurring codes and arranging them into categories and subcategories. The third more substantive coding brought them all together into a smaller set of categories. Glaser (1978) proposed the 6 “C” approach: Causes, Contexts, Contingencies, Consequences, Covariances and Conditions. The purpose was to bring the analysis into greater coherence and move it in a more theoretical direction. The process of analysing the data is presented in the Table 4.4:

Table 4.4: Phases of Thematic Analysis

PHASE	DESCRIPTION
1. Familiarisation with the data	Transcribing, reading and rereading the data making notes of initial ideas
2. Generation of Initial Codes	Coding of interesting features of the data in a systematic manner across the entire dataset collating data relevant to each code
3. Search for themes in the data	Collating codes into potential themes, gathering all data relevant to each potential theme

4.	Review of the themes	Checking that the themes work in relation to the coded extracts (phase 1) and the entire dataset (phase 2) generating a thematic analytical "map"
5.	Definition and naming of themes	Continuing analysis to refine the specifics of each theme and the overall story the analysis tells; generating clear definitions and names for each theme
6.	Production of the Report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Source: Self

The thematic coding approach was informed by Robson (2011). Initially, themes were selected freely and without constraint or prejudice using a manual system. Robson advocates the careful use of intuition even as far as using 'hunches' .All the texts were subjected to an online analytical tool and this was considered as strengthening validity. This tool generated a frequency list based on the number of occurrences of various terms. This method produced some redundant words and these were removed from the data the remaining words were checked with the list of themes which were identified through the manual method. This approach strengthened the manually produced list by applying a statistical measure based on the frequency of the occurrence of each term.

Many of the themes which had emerged from the manual method were confirmed as belonging to the 10 most frequently occurring words found by the statistical analysis; also included were those terms which belong to the 50 most frequently occurring terms (after removal of redundant words e.g. and, a, it etc.)

Next, this list was further reduced by a careful identification of themes based on repetitions and patterns found to be recurring. Themes based on frequently recurring concepts such managers' roles and responsibilities in IT projects or problems of communication were identified. A full treatment of the process is presented in Chapter 5 where all the themes are presented and discussed.

4.8 Validity and Reliability

4.8.1 Criteria for evaluating the Validity and Reliability of the Research

Validity and Reliability are twin concepts for evaluating the effectiveness of the research. Validity is concerned with the extent to which the research method and instruments actually measure what they purport to measure; reliability is concerned with how consistent the research method is and whether the same findings would be replicated in a similar study conducted under similar circumstances. The traditional approach has been to check the findings for internal and external validity, reliability and objectivity. However, these criteria are more applicable to quantitative methods, though they can be extended to qualitative methods. Criteria more appropriate for evaluating qualitative research methods have been proposed by Lincoln and Guba (1985) as an alternative to more traditional methods which tended to be quantitatively-orientated. These are set out in Table 4.5

Table 4.5 Alternative Criteria for evaluating Qualitative Research

Traditional Criteria for evaluating Quantitative Research	**Alternative Criteria for evaluating Qualitative Research**
Internal Validity	Credibility
External Validity	Transferability
Reliability	Dependability
Objectivity	Conformability

Table adapted from Lincoln and Guba (1985)

The researcher used these four criteria adapted from Lincoln and Guba (1995) to assess the validity of the research method and findings. Each of these criteria is now discussed briefly.

4.8.1.1Credibility

The credibility criterion is concerned with assessing how credible or believable the results of the research are from the participants' perspectives. It must be clear that since the purpose of this qualitative research is to investigate and understand the phenomenon of IT project planning as perceived by key project managers, that only those project managers who participated in the research are in a position to judge the credibility of the results. Accordingly, once the results have been analysed and written up, the researcher will present the draft report to the participants to establish its credibility.

4.8.1.2 Transferability

This refers to the extent to which the results of a qualitative research can be generalized or transferred to other contexts. Here, the primary responsibility for appropriate transferability of the findings of this research to other situations lies with the person who is generalising from these findings. For this reason, it was important to give a full description of the context of the study which has been largely achieved by means of the Case Study in Chapter 3. This would also highlight the basic assumptions underlying the research. This plenitude of information should enable the person who is considering transferring the results to another context, to be able to judge whether it would be prudent to do so. Thus, transferability would strengthen the findings of this research but is the responsibility of other researchers who must decide on the appropriateness of such a transfer.

4.8.1.3 Dependability

The traditional view of reliability within quantitative studies relies on replication of results and findings. Thus, a reliable study would be one, which if repeated under similar conditions would yield the same results.

By contrast, dependability stresses the ever-changing context within which the research occurs. The researcher notes how circumstances change in the course of the research and how these changes have affected the way in which the researcher approached the study.

4.8.1.4 Conformability

The goal to be achieved in quantitative research is for the researcher to be as objective as possible and to remain somewhat distant from the data being

collected in order to avoid bias. By contrast, the researcher is very much involved with the data in qualitative research. In fact, the researcher can be considered as an instrument of data collection. In fact, much qualitative research assumes that each researcher brings a unique perspective to the study. The current researcher is directly involved in the research, particularly in that they belong to the organisation being researched. Confirmability refers to the degree to which the results could be confirmed or corroborated by others.

Conformability can be established in a number of ways. The researcher can document the procedures for checking and rechecking the data throughout the study. Another researcher can take a "devil's advocate" role with respect to the results, and this process can be documented. The researcher can actively search for and negative responses that contradict prior observations. Following the research analysis and findings, the researcher intends to conduct a data audit to assess the data collection and analysis procedures in order to identify any instances where there might have been some potential for bias or distortion in the data.

4.8.2 Implications

The underlying assumptions in this research about the nature of knowledge and how it can be obtained is that of interpetivism. This implies that the researcher will play a key role in ascertaining the meaning of the data which emerges from the semi structured interviews. This raises a number of serious problems relating to the validity and reliability of the findings.

The first of these problems relates to the researcher himself, who as an IT manager within the NGHA, is already a key player within the phenomenon under investigation. It could be argued that an independent “outsider” as a researcher might remove possible biases in interpreting the data. However, the culture of the NGHA, and even within distinct departments of the NGHA, is extremely complex and such an outsider might also be biased due to their lack of appreciation of the subtleties in how key players construct, through their interaction, the very culture under investigation. Moreover, as has been discussed in the previous section, in a qualitative study, the interviewer becomes involved in interpreting the meaning of the data that is collected. Indeed, the researcher is an instrument of the research itself rather than a detached observer as is often the case in quantitative studies in the interests of objectivity.

In paying attention to the removal of bias, the researcher was greatly influenced by the “epoche” method used in phenomenological inquiries. By this method, the researcher “brackets out” their prior knowledge and presuppositions in interpreting the data obtained from interviews (Moustakas, C. 1994 pp. 84). This is not to say that the researcher did not still have their preconceived ideas and prejudices, but rather that the researcher made a conscious and conscientious effort to bracket these out of the interpretation to allow for the interviewees’ rich understanding of the phenomena under investigation to emerge simply and non-judgementally. How this is accomplished in the analysis stage has been related by Giorgi (1979 p.83):

> “(1) The researcher reads the entire description straight through....to get a sense of the whole.

(2) Next the researcher reads the same description more slowly and delineates each time that a transition in meaning is perceived with respect to the intention of discovering the meaning."

The researcher, then, intended to adopt the "epoche" approach outlined in Moustakas (op. cit.) and kept in mind the steps suggested in Giorgi (op. cit.) in discovering the meaning of what was being read in the interview transcripts.

The researcher has reflected on the matter of his position within the hierarchy of power within the NGHA and how this might discourage honest disclosure on the part of his colleagues. He intends to address this by reassuring the interviewees of the purpose of the inquiry which is to obtain honest views regarding how IT projects are planned and implemented as well as their views on factors that militate against their effectiveness. The interviewees will be given assurances that their responses will be generalised and only reported or commented on in an anonymous manner. Respondents will be assured that by being open and honest they will contribute to the research and will help making recommendations for enhancing their project management. Ultimately, their honest disclosure will result in a better understanding of IT project management in which they, too, would be beneficiaries. Assurances will also be given about the security of their data and responses which will only be accessible by the researcher alone. The generalisation of the findings will make it impossible to identify any individual's contribution; thus there should be no fears of any adverse repercussions arising from their contributions. Additionally, a time period will be allowed for any respondent to have their data removed from the research if they so desired.

The researcher is also aware of the many theories about meanings that can be attributed to interview data. A number of these theories, based on semantics, are concerned with the truth or falsity of statements and propositions (e.g. Frege (1919) and Russell (1914). The researcher has been very much inspired by the viewpoint taken by Chomsky, despite his many scholarly critics Chomsky (1965). Following Chomsky, the researcher does not intend to become hampered in his interpretation of data by focusing on propositional truth or falsity. Rather in agreement with Chomsky, the data of interviews should not be subjected to the categories of “true” or “false”. Statements from an interview should not be viewed in the same way that a logician views propositions. With Chomsky, the researcher does not believe that statements from interviews should not be measured by the extent to which they are purported to correspond to external realities. In an interview, there are really no “true” or “false” responses. What really matters is the meaning which the researcher attributes to the statements made by the respondent. These internal meanings can be picked up by the researcher because the researcher has a holistic view based on tone of voice, nonverbal cues and the overall context within which the interview is being conducted: “meanings are content intrinsic to expression” and “are defined and individuated by syntax, broadly conceived” (McGilvray 1998 p. 225). Chomsky’s claim of a universal innate language which underlies all human languages, despite their diversity led the researcher to conclude that the situational specificity of this piece of research can be transcended with reference to its universal applicability.

4.9 Conclusion

This chapter has presented the Research Design underlying this study with special reference to a framework for the design. The method is mainly of a qualitative data although some use of statistics is employed to support the more qualitative statements. Issues of epistemology were addressed and a thorough discussion was given to underlying philosophical assumptions in the research. Particular attention was given to case studies and semi-structured interviews as instruments for generating data.

The analysis of the data was outlined and ethical considerations were also discussed. Some attention was given to aspects of the interpetivist paradigm and issues of validity and reliability were outlined with special reference to the work of Lincoln and Guba (1985) who provided an alternative set of criteria than those applicable to more quantitative methods.

The following chapter will present the analysis of the data collected through the Case Study of the NGHA.

Chapter Five

FINDINGS FROM ANALYSIS

5.1 Introduction

As explained earlier, the performance of projects significantly impacts the success or failure of the projects (Haspeslagh, 2010; Abouzahra, 2011); therefore it was felt that there is a need for an in-depth investigation into factors which by and large determine the success and failures of the IT projects (Assaf et al., 2013) in the Ministry of National Guard Health Affairs (NGHA) in the Kingdom of Saudi Arabia (KSA). This meant exploring the perception of those involved in the implementation of the IT projects regarding the various factors that they viewed as affecting the performance of the projects in the recent past in order to find out what factors if any have resulted in the failure or success of these projects. More over to find out what lessons can be learnt from these instances to improve the organizations and management of the IT projects to overcome the difficulties and constrains which have led to the demise of some projects in the past.

As demonstrated in the previous chapter, there are multiple ways to analyse qualitative data (Cunliffe, 2011), and the choice is influenced by the philosophical position of the researcher (Morgan and Smircich's, 1980) and the aims of the research study (Richards, 2009). The central aim of this study is to gain an understanding of factors and causes that lead to success and failure of the IT projects in the Ministry of the NGHA as viewed by the individuals involved in their implementations. The researcher to a large extent has adopted the social constructionist approach thus viewing the reality of project

implementation as experienced and described by the individuals involved using social meanings available to them (Crotty, 1998), and has explored their experiences.

In order to achieve the above aim five divisions of the NGHA, in Madinah, Riyadh, Dammam, Jeddah, and Al Hassa regions were selected and a number of in depth interviews were carried out (see Table 5.1). As shown in in Table 5.1 fourteen semi–structured interviews were carried which led to the saturation of the data for this study.

Table 5.1: Number interviews per regional offices

No.	**Region/Organisation**	**No. of Interviews**	**Code**
1	Madinah Region	4	Me
2	Riyadh Region	3	Ri
3	Dammam Region	2	Da
4	Jeddah Region	2	Je
5	Al Hassa Region	3	Al
	TOTAL	14	5 Regions

Source: Data Analysis

As explained in chapter four the interviews were transcribed, and were subjected to stringent process of categorization, classification and they were codified which led to emergence of main themes and sub themes. This process ensured the interpretation of the data generated. As shown in Table 5.2 the codes were used to classify the interview based on their sources (organization and the individual interviewee). For example, the code for Madinah region is 'Ma' and Al refers to Al Hassa region. As shown in table 5.2 Codes were also used to signify the position of the interviewees involved in project Managers interviewed for example 'Pm' refers to 'project Mangers' thus the data from interviews which will be presented in this chapter will be sourced as '1apmMa'. In this way both the interviewee and the organization involved will be identified.

Table 5.2: Codification used for classifying the qualitative data

No. Interview	**Code**	**Position of participants**	**Code**	**Branch/ Region**	**Code**	**Classification**
1	1a	Project Manager	Pm	Madinah Region	Ma	1aPmMa
2	2b	Director	Dir	Riyadh Region	Ri	2bDirRi
3	3c	Project Manager	Pm	Jeddah Region	Je	3cPmJe
4	4d	Project Engineer	Peng	Riyadh Region	Ri	4dPengRi
5	5e	Director	Dir	Al Hassa	Al	5eDirAl

				Region		
6	6f	Director	Dir	Dammam Region	Da	6fDirDa
7	7g	Project Engineer	Peng	Al Hassa Region	Al	7gpengAl
8	8h	Project Engineer	Peng	Jeddah Region	Je	8hPengJe
9	9i	Project Engineer	Peng	Madinah Region	Ma	9iPgMa
10	10j	Data Centre Manager	Dcm	Madinah Region	Ma	10jDcmMa
11	11k	Application Manager	Apm	Madinah Region	Ma	11kApmMa
12	12l	Data Centre Manager	Dcm	Riyadh Region	Ri	12lDcmRi
13	13m	Data Centre Manager	Dcm	Al Hassa Region	Al	13mDcmAl
14	14n	Application Manager	Apm	Dammam Region	Da	14nApmDa

Source: Data Analysis

The rich qualitative data generated was subjected to a number of procedures (thematic analysis' which led to the emergence of 6 themes, and 19 sub-themes for further analysis.

This chapter is structured based on the emergent themes. First, the process which led to the identification of the above will be explained in some detail. Then each of the emergent themes will be discussed and examples of the data collected will be given. These discussions have benefited from the literature reviewed earlier. These are: “Personal Characteristics of the participants” (Ramsay, 1998), “Project Implementation” (Tukel and Rom, 2001), “Project Success” (Atkinson, 1999), “Causes for Failure” (Flowers,1996) , “Learning Strategies” (Hauschildt, & Medcof, 2000)., and “Interest in Findings”. Further analysis of the data led to emergence of the issues in some categories for example, the category of Personal characteristics includes information about the participants’ age, experience, and their role in the organization. Overall, the thematic analysis has produced a ‘tree of information’ which shows the relationship between the emerged issues, sub theme and the main themes. Interestingly, two main themes which emerged from the data were the reasons or causes for success and failure of the projects. The emergence of this theme also validates the sound identification of the main aim of the study which formed the basis for the research question. The other themes relate to the factors which influence the implementation process of the IT projects in NGHA and reveal the conditions which by and large affect the implementation of the project within public sector organization as the whole in the KSA. The emergent themes identified, the main categories of themes, and most importantly the sub-categories and the findings will be discussed in the remaining part of the chapter. Finally, an overall picture the data and the findings will presented as a table for further discussion in the subsequent chapter of this thesis.

5.2 Presentation of the Findings

Ackroyed and Hues (1982) argue that methods used to generate data ought to 'makes sense'. Thematic analysis is the method by which patterns (themes) within data are identified, analysed and reported (Braun and Clarke, 2006). Identifying common themes in the data generated by the individual interviewees involved which allows for their first hand understanding and interpretation of the factors and causes involved (Williams, 2000) in project success or failures. It is believe that this approach to analysis of the qualitative data generated will allow for the aims of the research, and the research questions to be addressed.

Using ground theory approach (Adams and Schavaneveldt, 1985), the data was classified into 6 emergent main themes and 19 sub-categories or sub themes which will be discussed in detail (See table 5.3). It is important to note that sub-theme here represent major emergent issues in each theme for discussion. Therefore for the ease of analysis in this study hereafter the sub themes will be referred to as 'emergent issues' in each category of the data.

Table 5.3: Emergent Themes (Categories) and sub-themes (Emergent Issues)

No.	Main Themes	No.	Sub-themes
1	Personal Characteristics of the Participants	1.1	Age
		1.2	Gender
		1.3	Education
		1.4	Years of experience work experience
			Project Position

		1.5	Years of involvement in implementation of IT Projects
		1.6	Project Position
2	Project Implementation	2.1	Perceived size of project
		2.2	Bidding and contracting
		2.3	Organization/ department role
		2.4	Influencing factors
3	Project Success	3.1	Criteria for success
		3.2	Planning process
		3.3	Role and experience of individual
4	Project failure	4.1	Cause(s) of failure
		4.2	Similarities with other PS organizations
		4.3	Interdepartmental cooperation
5	Follow-up strategies	5.1	Past project management/training
		5.2	Essential Training Development for future
6	Dissemination of the results	6.1	Request for results
	TOTAL	19	

Source Data analysis

5.2.1 Open coding, issues and findings

The data generated in the form of extracts from the interviews were subjected to two processes; First Open Coding and then to Axial Coding.

Open coding, as used here, refers to the process of analysis of qualitative analysis to bring together the data and ideas. During this process the

researcher identified tentative names of emergent conceptual categories (Stemler, 2001; Hussey and Hussey, 1997). The aim was to create multi-dimensional categories to form a preliminary framework for analysis of the data. However, instead of searching for 'words', the phrases and parts of the conversations common themes were targeted (See Table 5.3). This resulted in six open coding which was shared throughout the interview accounts by all interviewees. Thus open coding was used to reduce the data as well as identifying the conceptual main categories or themes. By sifting through each of the main categories, sub-themes or categories of the data were identified, for example, 'Project success' formed one of the main categories. The subsequent analysis yielded further sub-themes namely; 'Criteria for success' and 'Bidding and contracting'. This process was applied to all 6 emergent categories. The open coding resulted in identification of a further 19 sub-themes which each formed a conceptual sub-category.

Next stage of the analysis of the data was linking involved the re-examination of the main and sub categories identified to determine how they are linked. These groupings of the data were referred to as 'Findings' which contained a coherent collection of statements which helped better understanding of the nature and influence of the sub and main categories (themes) on factors which influence the project success and failures as perceived by different participants. It is worth noting that of the six identified emergent themes, the third and fourth main themes specifically related to the 'success and failure of the IT projects'. These themes were shared amongst all participants. Overall, the other 6 emergent main themes formed the cluster of data for analysis.

Therefore it could be claimed that the qualitative data generated has been subjected to a thematic analysis which resulted in a complete 'tree of information', where the position of each of the main themes, sub themes and findings represent the main branches, second branches and the final smaller branches. The outlook of the data is therefore determined by the relationship between the branches and most importantly it is formed by the presence of the findings or the final braches identified from the data. Understanding the factors which influence the success and failure of the IT projects as perceived by the participants has shaped the data tree and the subsequent conclusions (See Table 5.3).

5.3: THEME ONE: PERSONAL CHARACTERISTICS

5.3.1 Emergent Themes and Issues

As explained earlier, the classification and tabulation of data revealed that during the interview participants provided information which led to the identification of their personal characteristics (See Table 5.4 and 5.5). This information emerged as an important theme with seven related issues that were perceived as important by the participants. It is argued that the personal characteristics of the participants involved could be an influencing factor on their approach to managing IT projects (Forbe and Miliken, 1999).

Table 5.4: Emergent Themes (Categories) and Issues in the 'Personal Characteristics'

No.	Main Themes	Sub-themes
1	Personal Characteristics of the Participants	• Age • Gender • Education • Years of experience work experience • Years of involvement in implementation of IT Projects • Project Position

Source: Data analysis

5.3.1.1 ISSUE No. 1: Age

The participants' age ranged from 32 to 42 years old (See Table 5.5). Most participants (13 out of 14) located in age range 31-40 years old and only one participant in charge of implementation of the It projects aged below 40 (1 out of 14). This is an interesting issue which often observed in IT and related department. Unlike other public sector organizations, it is not unusual to see relatively younger employees in charge of the projects.

As one project engineer commented,

> "After leaving university I joined the NGHA. For the first two years, I worked in a couple projects and learnt a lot then I was put in charge…. It was good experience and I don't regret having it…" (3cPmJe)

A director in Madinah explained;

> " Yes, age comes with experience and together they decide what kind of projects a person can take charge of. It is not always the qualification or even the age, it is the past experience that we rely on. Of course, the failure or success makes all the difference (1aPmMa).

On the whole, the organisation provides the younger participants with opportunities to accumulated experience before they are placed in charge of the projects.

ISSUE 1: Findings
• *Majority of the participants were aged 31-40* • *Unlike other projects in public sector IT projects can be managed by relatively younger participants.* • *Often it is the accumulated experience and the qualification on the part of the participants rather than the 'age' which determines the choice of appointment for managing IT projects.* • *Traditionally age may mean experience however, this may not apply to management of the IT projects at NGHA*

5.3.1.2 Issue No.2. Gender

All participants involved in the study were male. This is not to suggest that only male participants are appointed for positions of managing projects in the NGHA. There are also female employees who work and manage projects in the organization; however, the randomly selected participants were male. It must be noted that organization seems to place importance on the qualification and

experience rather than favouring a specific gender. As a participant commented;

> "Traditionally, the technical positon were occupied by the male, however, in the recent years the situation has changed. More women seem to graduate in technical subjects like engineering especially in the health care…the opportunity is there and I have seen good female IT managers especially those in charge of IT centers and Application managers" (10jDcmMa).

Observation shows that despite efforts on the part of the organization to widen the scope of the employment especially for the recruitment of the engineers and managers, fewer women tend to have the relevant and suitable qualification to join the NGHA work in the project management positons of the IT departments. More interestingly it was noticed that for some participants gave the impression that the issue of gender is, as one put 'it of no consequence', and managed to steer the conversation skilfully away from the gender. As one of the participants briefly commented:

> "There are not many females in the sector [public sector] but let's face it, when the IT projects is a distance away from home and the managers has to deal with suppliers and what not there is a preference to place an experienced project managers with lots of experience, you know how it is…" (5eDirAl)

Another participant highlighted the fact that there is an awareness of this issue and the need for *diversity of the results* in the organization. As one participant noted;

> "As it is many projects do not finish on time and we seem to be always behind with some… so we need a strong project manager to deal with some of the project workers… you need to have someone to push things through and get results… sometime female employees prefer not to get into these arguments and potentially nasty situations. So they avoid taking the project on in the first place…" (2bDirRi)

The presence of more male project managers and engineers in charge of the IT projects and programs in development (Palmer, 1987; Momsen and Twonsend, 1987) is certainly not accidental. Issues such as local culture and history and the nature of projects can also have significant effects on the decision on appointing a project manager in the public sector (Analoui et al., 2011; Kakabadse, et al., 2004; De la Rosa, 2006).

ISSUE 2: Findings

- *There are fewer female project managers and engineers in charge of the IT projects*
- *The bigger the project/programme the more the likelihood that a male experienced project managers is allocated to the task.*
- *The 'completion' of the task and 'getting results' seems to be attributed to male project managers*

5.3.1.3 Issue 3. Education

The issue of education seemed to be treated with importance by participants. The comments made showed clearly that attainment of higher education qualification at least amongst the younger generation seem to be of importance. All participants possessed the first degree. Six participants held first

postgraduate qualification degree (BSc), and the remaining participants benefited from Masters degrees(6).

Traditionally, older employees seemed to possess a first degree whereas those with higher qualifications seem to be younger in comparison. As one commented:

> "It is becoming increasingly important to possess higher educational qualification, especially these times … having a master degree is no longer an advantage, it is becoming a 'MUST', I am not suggesting that it is the only qualification that make it possible to manage a project, of course not, but it is important to have higher education degrees " (6fDirDa).

There seemed to be an agreement amongst the participants that holding aa higher education degree relevant to IT and even management can facilitate securing project management positions in the organization. Those participants who possessed only postgraduate Diploma tend to under play the importance of the Master degree and placing emphasis on the relevance of the postgraduate qualification even at the postgraduate level.

> "Yes, it is good to have a master's degree but sometimes a Diploma [postgraduate] in programme management will make you more equipped with the relevant knowledge and experience…having masters is good but not everyone has had the opportunity to get a good master degree from say IK or USA, and the chiefs know it, you know yourself, there a lot of managers and engineers could only manage to get their postgraduate diploma. The experience counts" (11kApmMa)

It was interesting to observe that younger employees tend to see higher education as an investment for their future and the general tendency amongst the participant was that ‘Masters’ and ‘PhD’ seems to open doors.

> “Well the promotion is depending on the education and qualification. Qualification may not make much difference in managing a project, but it can open doors and opportunities in other departments and even outside [private sector]” (10jDcmMa).

As for the nature of the qualification, eleven participants possessed qualifications (postgraduate diploma and Masters) in project and programme management. The observation confirmed that since IT departments are often charged with IT projects or IT improvement programmes, the possession of relevant qualification seem to make the difference in becoming in charge of a project. As one explained.

> “Whatever we do is a project. It is often a project. We are told to install new equipment for a new department… this is all about project management. The qualification in project management helps a lot. It means you know the job and you can manage it” (8hPengJe).

The data clearly shows a direct relationship between age and educational attainment. The younger participants seem to hold higher education qualifications. However, as Kakabadse and Kakabadse, (1999) aptly note, there is little influence of the educational attainments on performance on the project.

On the whole, the trend seems to be upwards for securing higher educational degrees.

ISSUE 3: Findings
• *Most participants possessed a first postgraduate diploma and masters* • *Almost half participants possessed Master degrees* • *Three quarter of the participants possessed degrees in project and program management.* • *Participants welcomed the opportunity for obtaining a higher degree to secure promotion.* • *The trend is upwards obtaining Masters Qualification.* • *Qualification alone with the adequate and relevant experience does not guarantee securing the positon for managing project.*

5.3.1.4 ISSUE No. 4: Total years of work experience

Majority of the participants had between 6and 10 years' work experience. Only four participants had between 10-15 years of work experience in the NGHA (See Table 5.5). This was not entirely surprising because as explained earlier observations showed that the IT employee tend to change employment one or twice in their career and even move away from the one sector to private sector and set up their own business.

The response of the participants to enquiry about their total years of experience was a mixed one. Majority clearly showed willingness to consider this as a main factor which may has influence on managing projects, while others, as explained in previous sections felt that experience alone does not warrant the responsibility for project management. It is the relevant project related experience that makes all the difference. As one project manager commented;

> "You can work for decades in the organization but without relevant experience it does not make you eligible for becoming in charge of a project. You got to show that you know the job" (3cPmje)

However, majority agreed that the longer you are '*around*', the more likelihood to be '*picked up'* for a project. This view point showed the importance of the experience and may be the recognition for appointment as a project leader. A pariticipant with more than 15 years of work experience posed;

> "Let's face it you cannot walk off the street and claim to be a project managers!... how this can happen,… you need the experience.." (10jDcmMa)

Whilst there seems to be an undeniable relationship between the work experience and experience of being involved in the projects, observation showed that there seems to be the need for participants to accumulated a period of 4-5 years of work experience before being able to take the responsibility for undertaking a project on their own. As another participants mentioned, "you need experience under your belt" (5eDirAl). Another interesting observation was that although NGHA is almost a self-contained organization, the public sector norms and practices seem to also apply to this organization too. Those with more years of experience felt that they ought to be given more recognition in the work. A director commented;

> "no doubt with experience [length of work experience] comes other things.. when you have done the work for over a decade you know the ins and outs and you have some respect for what you do… that makes the difference when pushing a program and trying to implement it on time….mind you there other factors beyond our control (smile)" (5eDirAl).

On the whole, there seems to be an implicit agreement that work experience can be worthwhile. Yet the majority refused to make a direct connection between that and ability to manage projects successfully.

ISSUE 4: Findings

- *Most participants had between 6 to 10 years of work experience (10 out of 14) only 4 participants had between 11-15 years of experience.*
- *Almost all participants felt that work experience is essential for getting to know the job and gaining relevant experience*
- *It was felt that an initial period of 4-5 years of experience is essential for becoming seriously involved in leading IT projects.*
- *Participants with over 10 years of experience in the industry felt that their experience can form a basis for recognition of their expertise hence the ability to lead an IT project.*

5.3.1.5 ISSUE No. 5: Years of involvement in implementation of IT Projects

Data collected showed that one participant had up to 5 years project related work experience, three participants has to 10 years of involvement in the projects whilst majority (nearly half) of participant possessed between 11-15 years of working on the projects (See Table 5.5). Only three participants had between 16-20 years of experience. This information however, could be misleading since the minimum years of experience were 5 years and maximum years of involvement in project were 18 years in total.

It was clear that participants were proud of their years of relevant experience in projects and felt that it showed their accumulated degree of expertise. As one commented;

> “I have been involved in implementing It projects for more than 18 years now and I feel I have seen it all. The experience you gain during implementation is real, it gives you a kind of knowledge and expertise that a degree won’t… your relevant experience make you ‘*Khebreh*’ [expert] in the field.

The data collected showed that there is a relationship between years of work experience and the experience related to projects and their implementation. There seemed to be a crude correlation between the two sets of the data namely the years of work experience and years of relevant experience on the projects. For example, the three participants with over 10-15 years of the work experience had over 16 years of the experience. This revealed the that most participants have already worked either in another public or private sector organization or simply have worked in another region and for some reasons moved away to a region of their choice. A Director commented;

> “I have been here in Dammam for over 11 years now but I got real experience of managing IT Programmes before (6fDirDa). You never lose your experience you carry it with you. Most of the colleagues here have brought their experience of implementation of the projects with themselves. It is not always the It experience which is need to successfully manage a project, you need to understand the system, how the world works, the suppliers and you name it… it is a complex world”

On the whole, the IT departments seemed to benefit from long years of the accumulated relevant work experience which indicated the willingness on the

part of the IT experts to be involved in the project and the necessity to be involved beyond participant's preference. As one commented;

> "It is important to have variety of experience and you can only have this if you are involved in real work [project implementation]. Having said that you can't not refuse … You are in the IT department, you will be pulled in. If you are an engineer you will be expected to implement.." (8hPengAl)

ISSUE 5: Findings

- *Participants had between 5 and 18 years of project related experience.*
- *Working on IT implementation projects and programmes were seen as 'real' work hence valued as an achievement.*
- *There seem to be a connection between years of work experience and the years of work experience and the relevant experience gained through involvement in the projects.*
- *The involvement in the project was not always a choice; working in IT department often necessitated getting involved in project implementations.*

Table 5.5: Personal characteristics of the participants involved in the study

	PERSONAL CHRACTERISTICS: THEME ISSUES		Participants														Total
1	**AGE**		**1a**	**2b**	**3c**	**4d**	**5e**	**6f**	**7g**	**8h**	**9i**	**10 j**	**11 k**	**12 l**	**13m**	**14 n**	
		Up to - 30				✓											1
		31 - 40	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	13
		41- 50															-
		51-60															
		61- over															-
2	**GENDER**																
		Male	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
		Female															
3	**EDUCATION**																
		First Degree (BA , BSc)				✓											1
		Postgraduate Diploma (PGDip)	✓		✓				✓	✓	✓		✓				6
		Second Degree (MA, MSc)		✓			✓	✓				✓		✓	✓	✓	7
		Doctorate (PhD, DBA)															
		Professional Qualification															
4	**YEARS OF EXPERIENCE in Organisation**	Years															
		Up to 5															

		6-10		✓	✓	✓			✓	✓	✓		✓	✓	✓	✓	10
		11-15	✓				✓	✓				✓					4
		16-20															
		21- 25															
		25- over															
5	**Years of involvement in imp of IT projects**	Years															
		Up to 5				✓											1
		6-10			✓										✓	✓	3
		11-15		✓			✓		✓	✓	✓		✓	✓			7
		16-20	✓					✓				✓					3
		21- 25															
		25- over															
6	**Project Positon**	Years															
		Director		✓			✓	✓									3
		Project Manager	✓		✓												2
		Project Engineer				✓			✓	✓	✓						4
		Data Centre Manager										✓		✓	✓		4
		Application Manager											✓			✓	2
	Position in the Organisation																
		Director of IT Department	✓	✓	✓		✓	✓									5
		IT Project Engineer				✓			✓	✓	✓						4
		Data Centre Manager										✓		✓	✓		3
		Application											✓			✓	2

		Manager															

Source: Data Analysis

5.3.1.6 ISSUE No. 6. Project Position

Fourteen participants from 5 regional offices were involved in the study. As shown in table 5.2 there three directors, 11 managers whom included project managers (2), project engineers (4), Data center managers (3), and application managers (2).

Table 5.6: Position of the participants in the regional offices

No.	Position	No. of Participants	Regional Offices
1	Director	3	Riyadh Dammam Al Hassa Madinah Jeddah
2	Project Managers	2	Madinah Jeddah
3	Project Engineers	4	Riyadh Al Hassa Jeddah Madinah
4	Data Center Managers	3	Riyadh Dammam Al Hassa

5	Application Managers	2	Riyadh
			Dammam
			Al Hassa
			Madinah
			Jeddah

Source: Data analysis

In conclusion personal characteristics can play an important part towards the performance of the projects and programmes. Issues such as age, gender (Palmer, 1991; Kakabadse and Kakbadse, 1999) experience, and educational achievements do play a part towards involvement and leadership of the IT projects and programmes. It is important to bear in mind that contextual factors such as the nature of the work and the wider traditions and cultural value do play a part in the ways personal characteristics such as gender and age are seen as relevant to the position of the managers in the departments and the projects in the organisation (Kakabadse and Kakabadse, 1999; Same, 2009). On the whole, it can be claimed that the personal characteristics of the members are important and their understanding is essential for learning about ITprojects and programmes, their implementation and as we will see their success and their failure (Momsen and Townsend, 1987; John and Senbet, 1988).

5.4. THEME TWO: PROJECT IMPLIMENTATION

5.4.1 Emergent Themes and Issues

As explained earlier, the classification and tabulation of data provided by the participants during the interview participants led to the identification issues related to implementation of the projects (See Table 5.3 and 5.7). This

information emerged as one of the main themes with four related issues namely; *Size of the project, Bidding and contracting, Organization/ department role, and Influencing factors*. These issues perceived as important by the participants for implementation of the projects. It is believed that implementation of the projects constitutes an important phase for the success and failure of the projects (MPA, 2011; Shead, 2013).

Table 5.7: Emergent Themes (Categories) and Issues in the 'Project Implementation'

No.	Main Themes	Issues
2	Project Implementation	• Size of the project • Bidding and contracting • Organization/ department role • Influencing factors

Source: Data analysis

5.4.1.1 ISSUE No. 1: Size of the Project

Most participants (11 out of 14) comment that they have been involved in all three categories of the projects. Three participants commented that they have been involved in 'small, medium size and a few large projects' (for example, 14nApmDa). Almost all indicated that there is an incremental process of becoming involved and exposed to different sizes of projects. As one experienced Director explained;

> " We all start from small projects and work our way to the big ones….in some ways smaller projects are… there is more ownership and few people involved. The chances of seeing

through successfully is much higher, the same cannot be said about the bigger ones. But it is good to be involved and managing big projects" (2bDirRi)

The same participant pointed out [with emphasis] that;

> "I have been in involved mainly in Medium and some large projects. The current PASC project is large" (8hPengJe).

This suggests that there are more medium size projects than large ones. It is also evident that participants find involvement in a large project a form of recognition and status.

Almost all participants agreed that the criteria for the size of the project are the budget allocated or the estimate cost for its implementation. As Director explained;

> " The cost of the implementation of the small project is usually up to 100,000 SR (Saudi Rials), the medium size is anything up to 900,000 SR and the large ones are 1000, 000 SR and above. It is good to be involved in the big ones but as you know better the chances of not being completed in time and going over the projects are high, so it is a kind of '*bitter sweet'* experience". (6fDirDa)

On the whole, the size of project may have effect on the prospects for success ((Noordam, et al. 2007). The IT projects in NGHA are no exceptions, like other 'big hitters' ((Evans, et al. 2002) projects in excess of 1000,000 SR are classed as large and complex and are more prone to failure (Derksen and Noordam, 2006)

ISSUE 1: Findings

- *The size of the project is defined by the size of the investment involved; Small, up to 100,000RS, Minimum, 900,000 RS, and large 1000, 000RS and over*
- *The seems to be a gradual and incremental progress to management from small to large projects*
- *Being involved in large projects bring with it higher recognition and status, however, the participants are aware of the risk of the failure associated with large projects.*

5.4.1.2 ISSUE NO.2: Bidding and contracting

All participants were aware of the processes involved in bidding and contracting. As an Application Managers explained

> "Once advertising is complete, HRM pass on the applications once they have filtered out candidates which do not meet the criteria. We then look at these applications and pick out the most suitable ones by creating a shortlist of no more than 7 or 8 candidates…sometimes even less than this. These are passed on to the Contracts Management Team who arrange interviews and finally appoint" (11kApmAl)

However, one of the participants emphasised on his role and involvement in the process of short listing and selecting the most suitable contractor; The Director stressed;

> "Yes, we do use bidding but this is handled by contract management department (CMD), however myself and my management team are responsible for examining each proposal and for coming up with shortlist to present CMD" (6fDirDa).

The process was seen as '*open and transparent'* the Director Explained;

> "Yes, this is open and transparent. I would say that it is impossible to say which of the two is most important actually both are crucial. There simply is no such thing as a non-limited budget. Serious budget over spend in one project will result in other equally important projects having to be shelved or postponed at the same time we want a project to really efficiently deliver on what it was planned to do I admit that it is not always easy to get the balance right between Cost and Quality but its got to be done it is my job" (5eDirAl).

The role of the contract management department (CMD) seemed to be seen as rather important. A few participants explained the process of bidding and selection with emphasis on the role of the CMD, however, it became clear that the short list of the candidate is carried out by the department involved. For example the Data Centre Manager explained;

> "Yes. But the Contracts Management Department are responsible for the final decision. We draw up a shortlist and they decide who to call for interview" (12lDcmAl)

The issues of the cost and quality were seem as imperative in deciding on who should implement the project though as can be seen later some placed emphasis on the consideration of the cost but fewer participants saw the quality as the most important factor. As a Project Engineer explained,

> “Yes, working with the Contracts Management Department which is responsible for receiving quotations and proposals from prospective tenders. Both quality and cost are important and it is not necessarily awarded to the cheapest bidder. This department creates a shortlist of viable proposals and sends it to the concerned department who selects from the shortlist one of the tenders and write up reasons for accepting and rejecting” (4dPengRi).

Amongst those who felt cost should be give more consideration was the project managers from Jeddah who argued that;

> “Cost is the most important factor. There is ever only a limited amount of finance available and these projects are often high-risk projects. If they fail to deliver, there can be immense losses and this can also mean that the company is black listed and will find it hard to secure any other tender. So, even if it runs over on time, as long as it can deliver everything within budget, then other things can be to some extent overlooked. So its most important not to exceed on the budget”.

However, besides researcher’s own observation, participants on the whole felt quality should not be compromised. The Application Manager from Dammam explained;

> “The main objective is quality. And cost is a secondary consideration but obviously important”.

The participants were asked about ‘do they use contractors’? ‘And how about the contractors abroad’? It was discovered almost all participants are aware of the fact that contractors cannot be wholly given to contractors, some felt that

only the “peripheral component should be outsourced” (3cPmJe) while other used the term “partly” without specifying the extent of the work involved.

> “Both types of projects are used but only major projects worth around $10 m are awarded fully to one contractor with a clause that it cannot be sub-contracted” (2bDirRi).

Most participants (10 out of 14) emphatically expressed ‘partly’ rather than wholly. They however, explained that depending on the nature of the contract and the availability of the for example medical equipment the part cost of the part contract awarded can be substantial. For example, A Director explained,

> “Partly or wholly depending on the nature of the project. Mega projects in excess of one million Saudi Riyal (SR) need to be commissioned by Project Management Office (PMO). Yes, from different countries depending on the project. Currently we are working with a USA company” (6fDirDa).

The countries from which materials and equipment’s were procured were mainly the USA, Canada, and South Korea. This confirmed that most dealing are done with North American companies and those approved by the US like South Korean. This however, constitutes a narrow view of the situation, participants stressed that some companies in US and South Korea can provide the best quality and are probably the only companies who can provide the equipment’s and materials needed by NGHA. For example, A participant commented,

> “Partly. I work with Cisco a US based company who have vast expertise in MIS” (10JDcmMa).

Or as another participant explained,

> "Partly. Currently we contract with SBG. Yes. Some consultancies from USA and South Korea" (13mDcmDa)

On the whole, the bidding and contacting process has been the concern for a long time. The concern for quality and the cost make gives importance to the process of bidding, short listing, and awarding contacts (Abouzahra, 2011, Martin, et al., 1998). NGHA deals with variety of the companies' world-wide to procure the necessary equipment, materials and expertise.

However, as explained earlier despite taking all the necessary steps, the implementation of the contract is usually fraught by difficulties which will be explained in later sections.

ISSUE 2: Findings

- *All participants were aware of the 'bidding and contracting' processes involved in awarding the projects.*
- *The process is viewed as 'open and transparent' and involves joint consultation of both the department and the 'contract management department'.*
- *The short listing is carried out by the HR and the concerned department.*
- *Most participants believe that 'quality' should be the main concern and not the 'cost'; however, there those who believe quality should not override the reality of 'cost' involved.*
- *Projects are only partly contracted to outside firms*
- *USA, Canada, and South Korea are amongst more notable countries with which NGHA has dealings.*

5.4.1.3 ISSUE NO.3: Organization/ department role

The role of the organization or the department in which participants worked in implementing the projects varied vastly. Three participants from the different areas of operation explained that,

> "My department is responsible for managing IT projects and overseeing the work of engineers" (14nAPmDa).

Or,

> "My department is responsible for managing all aspects of IT installations throughout the organisation by overseeing the work of engineers. I am also involved in the coordination of the various phases of the operation (12lDcmAl).

Another example of involvement in a specific aspect of project depending on the nature of the expertise in the depart was,

> "My department is responsible for overseeing all aspects of MIS installations throughout the organisation. My job is to mainly oversee the coordination of the many phases of the operation" (10JdcmMa).

Some participants explained the process of involvement in greater detail. For example,

> "Although I am not directly involved, my department is responsible for the overall decisions as to the levels of access to be given to various personnel including external sub-contractors" (7gPengJe).

Another example is the Director participants, who commented,

> "Communications with other departments and outside agents is vital but has to be done in such a way as to protect information

which is private to the organization in some cases there are IT solutions but each module of communication has to be carefully vetted by me as I will be held ultimate responsibility"(5eDirAI).

Another participant who worked in department with monitoring and managing role emphasised;

"Vital executive role as all such outside contributors must present their strategic plan for examination by the project committee who may reject if they are not confident that the scheme is feasible" (1aPmMa).

On the whole, the participant's involvement went beyond the bidding, selecting and contracting rather each department is hold responsible for the monitoring the progress of the programme and managing some or all of its aspects. Whilst, most participants managed specialist aspect, the Directors in the organisations felt that 'the buck stops at their door' (1aPmMa).

ISSUE 3: Findings

- *The departments and individual managers were held responsible for some aspect (depending on the specialization and nature of department) or all aspects of the project (for example Directors).*
- *Creating relationship with contractors and sub-contractors and the implementing teams and department were the responsibilities of the project managers.*
- *The role of the department is to oversee, manage and monitor the activities and progress of the project*

5.4.1.4 ISSUE No. 4: Influencing factors

Two groups of factors were identified; the first group consist of those factors related to 'Individual' 'performance and competencies', and 'Organization' (often processes), and the 'External forces' beyond their control such as international competition, and economic 'influences'.

For example,

> " *Individual*……All the team is well trained for the job. But we have problems with staff shortages due to illness and we find it difficult to find suitable temporary replacements.
>
> *Organizational* ……I think that Management have correctly estimated the workforce levels but failed to take into account staff illnesses. We really need additional staff, but none are being appointed as of this time.
>
> *External*……Currency fluctuations cause our budgetary planning some problems. This is difficult to plan for and I think a margin needs to be factored in" (10jDcmMa)

Another participant provided similar views;

> "*Individual*……Some individuals need focused training.
>
> *Organizational* ……None I can think of on the spot.
>
> *External*……Sometimes it is difficult to make contact with consultants due to time difference. Emails often go unanswered and it may take several follow up emails to finally get a reply" (11kAmpMa).

Most factors raised included issues of HR, discipline, punctuality, deliveries and relationships with suppliers. The external factors often overlapped with issues of 'work ethics' and importance of 'having proper belief system'. So religious

values and beliefs are often taken as external factors rather than personal values in operation. For example,

> "*Individual*……People missing from work for various reasons can slow down the project *Organizational* ……That the funding is received in good time as per agreement…*External*……Delays in deliveries of essential components from abroad
>
> In what ways, Islamic and cultural values such as Relationships; Trust; Commitment; Respect impact the implementation of the projects?
>
> Really it is a matter of people being reliable and honest and working hard to give value for money. Your religion can help to inspire these values but really all human beings should behave in this way" (3cPmMe).

The second group of factors were 'Islamic and cultural' factors which they affected the project implementation through the individuals in charge. The latter factors determined the level of the commitment and work ethic that participants adhered to. It must be noted that the official religion in Saudi Arabia is 'Islam'. For example,

> "I pray daily to Allah for guidance in all my affairs including work. Many of our team members are inspired by their Islamic faith" (14nApmDa).

Another example of how important Islamic values are held by the participants is;

> "My Islamic faith really supports me and I always ask for Allah's guidance for important decisions. Of course I have to use my brain as well. God gave us intelligence but wisdom is different. I have to pray for wisdom to work alongside my knowledge. And it also

> helps me to act fairly and exercise patience in all my affairs" (11kApmMa).

Some of the statements made by the participants suggested the expectation they hold from their colleagues who happen to share the same religion and same belief system. In some cases comparison has been made between 'foreign workers' and the indigenous colleagues' .For example.

> "Workers have trust in one another arising from their religious faith. Some foreign workers have really been excellent even though their values were based on things other than faith" (2b DirRi).

On the whole, the view expressed by most participant was that 'religion matters' and should not be taken lightly because it influences the values individual holds and the ways in which the people go about their work and relate to others. Undoubtedly Islamic values and beliefs have formed the very foundation of the members conduct, relationships and the working practices. In Saudi Arabia Islamic values provide the corner stone for the social and business interactions (Sameh, 2011; Abuznaid, 2006). As an experienced participant commented,

> "I think that religious faith really matters in life, so I am guided by my Islamic faith but we have people from other faiths all religions seem to teach and guide people to be honest and hardworking" (5eDirAl).

ISSUE 4: Findings

- *Three groups of influences for project implementations were identified. These included; Individual, Organisational and External.*
- *The lack of knowledge, indiscipline, and lack of training and liaison with others were suggested as the main individual and organisational factors for delays in project implementation. Moreover, the relationship with consultant, in ability to get the resources and professional support on time and finally the economic and political factors were seen as responsible for adversely affecting the implementation of projects.*
- *Participants are aware of the influences of the tradition, Islamic values and rituals on their behaviour, interaction with others at work.*
- *Tradition and rituals have influence on the ways individual managers interact at work and go about implementing the projects..*
- *Amongst the traditions and social values which affected the Board effectiveness, 'Respect', 'Respect for elders', 'Honesty' and 'Sharing' seemed to be the most influential*
- *Islamic values are adopted in daily life as well as well as at work.*
- *Islamic values fosters trust, honesty, integrity and hard work*
- *Islamic life values and code of ethics determines the foundation of members' behaviour in particular and the work relationships as the whole.*
- *Some participants felt the other do not subscribe to religious values as they should*

5.5. THEME THREE: PROJECT SUCCESS

5.5.1 Emergent Themes and Issues

As explained earlier in Section 5.1, the classification and tabulation of data that during the interview participants provided led to the identification issues that they felt was influential for success of the IT project implementation (See Table 5.3 and 5.8). This information emerged as one of the main themes with three inter-related issues namely; *Criteria for success, Planning, and Role and experience of the individual manager.* These issues perceived as important by the participants for the success of the projects. It is believed that success of the IT project weather in private or public sectors constitutes and important issue (Hussein et al., 2007; Ngai et al., 2007) however, there is scant research into IT projects in high income developing economies despite the potential of such counties for significant IT project development. Xu and Meyer (2013). In this section the data related to factors leading to project success will be presented.

Table 5.8: Emergent Themes (Categories) and Issues in the 'Project Success'

No.	Main Themes	Issues
4	Project Success	• Criteria for success • Planning process • Role and experience of managers

Source: Data analysis

5.5.1.1 ISSUE No. 1: Criteria for success

One of the main concerns for the participants seems to be the time and issues related to completion of the project. Eight out of 14 participants felt that time is

the criteria for success factor for projects. This group included some of the most experienced participant such as directors, project managers and project engineers. A project engineer commented;

> "Definitely time is a crucial factor. If our work is behind schedule, it can impact on other related projects. Also travel has an impact, and being away from our families. We could really use an extra engineer" (9iPgMa).

Another project engineer commented;

> "The main criterion, I think, is completion within the agreed time as failure to meet this may impact on other projects which are related. Of course, the quality of the project and staying within budget are also important as well as providing training for the intended end users" (7gPengAl).

A manger also explained that not being on time leads to delay and hence hindering the success.

> "Time is very important. Keeping projects on track is difficult and we have some delays. But we really have to catch up due to the impact our delays have on the entire organization" (10jDcmMa).

Observation showed that whilst participants pointed to a main concern such as 'time', they also felt that other factors such as quality and cost are also play important parts. A senior participant commented that; "*Three things, Quality, Time and Cost*". (5eDirAl).

Whilst time and completion seem to perceived as the most important criteria, the cost involved and being able to keep within the designated budget were seen as important criteria. A manager suggested;

> “ Cost is the main factor. Funding is always limited and it is essential to keep within our budget. There have been serious overspends in the past and we must now do our best to avoid repeating this” (12lDcmAl).

Another manager also concord that;

> “Cost is a big factor. However, there is also a need for high quality to meet the needs of our end users. At the end of the day, the project must deliver on its aims and objectives and our end users need to be satisfied with their functionalities” (13mDcmAl).

As it is shown the concern with cost is also linked to other issues such completing the project within budget but also within the specification originally planned for. It is evident that to avoid cost overrun the project manager should not resort replacing the materials with lower quality. The quality and cost seems to be linked in many ways. Therefore it was not surprising to see that quality was included in most responses. A senior participant said; “*Quality, Completing on Time and within budget Cost*” (6fDirDa).

A project manager commented;

> “The single most important factor is the quality of the system. It must meet all the specifications required. This is a tall order but it is achievable. I think we may need a little longer to complete…say about 3 or 4 months as we had some trouble procuring essential components. There was a change of supplier which caused some delays. These components were needed urgently and they held up other phases of the project (8hpengje)

It is evident that some managers strongly feel that quality should not compromise even if it results in delays and time overrun.

There are also, suggestions that adequate human resources would contribute to the success of the project. However, this factor seems to be implicit within other comments rather than an important single factor for the success of the projects. For example, a project managers commented "*Of course, the quality of the project and staying within budget are also important however, without enough staff the job cannot be done on time* " (7gPengAl)

The analysis of the data collected concerning the success factors of the IT projects clearly led to identification four often inter-related factors. These included, *cost* or completion according to the allocated budget, *time* (completion on time), *quality* (according to specifications), and *resources*.

ISSUE 1: Findings

- *Time and the need for completion of the project seems to be the main concern (criterion) for the success of the projects*
- *Cost and being able to implement the project within allocated budget was another criterion for success of projects.*
- *Quality of the work seemed to override other concerns since it became an integral part of time and cost criteria for the participants*
- *Adequate human resources were mentioned in relation to training end users and getting job done on time.*

5.5.1.2 ISSUE No. 2: Planning process

All participants agree that planning constitutes an important criterion for the project success. For example, a senior manager said "*Simple. No Plan, No*

*Project. A plan that considers every aspect of the project" (*2bDirRi). Or another senior managers claimed that;

> "I have a motto 'I will have a plan. I may not stick to it but I will have a plan' I think that just about says it. Not having a plan is like a ship without a rudder" (5eDirAl).

Other managers saw the planning as important however tended to emphasize a specific aspect of the plan. For example, financial consideration;

> "It is vital. Especially financial planning to make sure that the correct amount of finance is directed to each phase of the project. This should be just right…neither too much nor too little. Get this right and the project will succeed within" (3cPmJe).

Another interesting discovery was the relationship between planning and the time allocated for its implementation. For example, a manager commented;

> "Planning needs to be looked at again, especially in terms of time allocation. Time spent in travelling has been underestimated in my opinion" (10jDcmMa).

This comment showed that some It projects are implemented with the region and not necessarily within the main head office. Whilst the Centre in Madinah constitute a major centre, some projects are implemented as far as 100 kilometre from the regional capital and it take time for travelling to and from these projects. A managers confirmed that;

> "Planning is important but it has to keep timeframe in mind too. Planning is usually carried out here [in the center] and the time to reach the project [location] and return to capital is often overlooked. These travelling times add to the overall timeframe and should be included in the original plan. Often, engineers think

> the time is needed to put into operation a component and forget about the time to get there and back". (12lDcmAl).

Others referred to '*logistics'* which showed how distance can affect the operations and has to be considered as important factor in the planning of the IT projects. For example;

> "It is essential. More attention needs to be paid to logistics as we are operating with departments which are great distances apart. Time is important but also once you get there you need to have the right logistics like vehicles, equipment, catering and even accommodation" (8hPengJe).

Another participant also emphasized on the need for considering all aspects of the project when planning an IT project.

> "Without a plan the project would be proceeding in random fashion and probably getting nowhere. The most important aspect of planning is having realistic time scales, resources, logistics….. for completing various phases of the project" (6fDirDa).

Observation made by the researcher suggested that there seems to be a separation between planning and realities of its implementation and that it is this aspect that leads to lack of success. As a project managers argued "Well know what is needed to get a job done but this is not always reflected in the plan…." (14nApmDa) .

ISSUE 2: Findings

- *All participants saw planning as an important aspect for success of the projects*
- *Participants felt that plans need to be 'realistic' especially as far as 'time' needed for and 'budged' and 'logistics' needed for it successful implementation.*
- *There seems to be a feeling that implementing managers are not adequate consulted during the planning stage.*

5.5.1.3 ISSUE No. 3: Role and experience of managers

All participants acknowledged the 'importance' of the project manager and that he or she plays the 'key role' in the success of the project.

> "The project manager plays a key role in steering the whole project, so he/she is very important" (6fDirDa).

Or as a director pointed out;

> "The project manager is a key person within the project as he has first hand knowledge of what is going on and can steer the project towards success" (5eDirAl).

Interestingly, when describing the role of the manager most participants also referred to the qualities that a project manager has to possess in order to succeed. For example;

> "If the project manager has a good knowledge of the system this would be beneficial. Engineers regularly report to management. At one point we were actually ahead of schedule but we are now 2 to 3 weeks behind and this may impact on our ability to implement within the timeframe. With luck and hard work, we could get back

> on track. There is some considerable stress on engineers who are being pressured to meet targets which we can't meet without having essential components to hand" (8hPengJe).

Here not only the qualities of an ideal project manager were discussed, attention was drawn to the stresses involved in project manager's job. Often a specific competency or management skill was put forward as being a prerequisite on the part of the project manager's role to manage projects successful. Communication and leadership seemed to be in common amongst the participants.

> "A good project manager is essential and he needs to have excellent skills of communication and be able to motivate his team. Not every project manager possesses these qualities, sadly" (11kApmMa).
>
> "If the overall project manager has good skills of communication and regularly checks on progress then, I think that the project can succeed. Of course there are factors beyond his control especially supplies of materials from overseas. Delays here can hold back the entire project. A note should be made of the delivery times involved in order to plan effectively" (7gpengAl).

The ability on the part of the manager to deal and manage teams was evident. As one manger commented;

> "The project manager plays an important role but he is only one member of a large team. The project manager is the one who can help all members to live up to the organisation's mission statement. But in the end, he is no more important than the

operative on the floor as his contribution in its own way is just as important" (2bDirRi).

Another quality which was felt to be inherent in the role of project manager was reported as 'Leadership'. Most managers felt that team or overall leadership is an important factor for the success of the project. For example,

"as a good project manager must have good leadership skills and be able to inspire his team, motivating them and giving them vision" (14nApmda). Or

" The project manager is essential but must have strong leadership qualities and be able to motivate all team workers 9in a co-operative venture" (4dPengri).

To further explore the issue related to team, team membership and its importance, participants were asked, In your opinion, can team work contribute to the success of the projects? The participant overwhelmingly supported the importance of the being and acting as a member of the team. For example, a manager commented "Yes, it is very important", (11kApmMa), and another manager added, "No project can really succeed without good team work where all members work together for a common outcome" (3cPmJe), and senior manager also commented that "I strongly believe in team work as long as it is well directed and coordinated"(6fDirDa).

The account provided by participant seem to be in line with the account reported by researchers in the literature. The role of project manager is perceived in relation to qualities such as managing teams, ensuring quality (Senior and Flemming, 2010; Lock, 2007), leadership and ability to motivate others (Smith, 2008).

ISSUE 3: Findings

- *All participants showed awareness of the importance of the role of the project manager in ensuring the success of the projects.*
- *The role of the project manager is often viewed in terms of the qualities that they ought to possess such as leadership, ability communicate, and dealing and managing teams*
- *Ability to work as team member, managing team came across as an important ability/skill on the part of the manager.*
- *All participant regarded team work as 'essential' for success of the projects.*

5.66. THEME FOUR: PROJECT FAILURE

5.6.1 Emergent Themes and Issues

As explained earlier the thematic analysis led to emergence of a number theme and sub themes (issues) of which the reasons for failure were one of the important categories of the data (See Table 5.3 and 5.9). The analysis of the responses received in connection with question 'In your opinion, what are main causes for project failures in your organization'? led to emergence of 4 interrelated issues, namely, *Cause(s) of failure*, *Similarities with other PS organizations*, and *Interdepartmental cooperation amongst the departments and organization*. In this section the data related to factors leading to project success will be presented.

Table 5.9: Emergent Themes (Categories) and Issues in the 'Project Success'

No.	Main Themes	Issues
5	Project Success	• Causes of failure • Avoiding Project failures • Similarities with other public sector organizations • Interdepartmental cooperation

Source: Data analysis

5.6.1.1 ISSUE No. 1: Causes of failure

The issues raised in relation to project failure were, to a large extent, reflective of the issues commented on when the participants were ask, what are the factors contributing to the success of the project. However, it was interesting to see that the responses received were based on their own experience this time round and not the view based on experiences of themselves and others. The way the participants expressed their views seem to be more emotionally loaded. The researcher asked the participants why is it so and the response was

> "no body likes failure…it is demoralizing especially when it is some one's else fault… ask anyone will tell you the same…We are professionals we should be able to get it right…but we don't" (4dPengRi)

The issue of commitment and motivation seemed to be the main reason for some. As one senior manager explained;

> “I think that one reason is the lack of drive or motivation among some team members. This has a knock on effect and can damage the whole team as the people who work hard start to feel resentful” (2bDirRi)

The communication and commitment on the part of the project members were also seen as basis for incompletion of the project. It was commented;

> “Poor communications and lack of real commitment can really be a threat to any project, Yes, I would say that poor communications from top to bottom or sideways is the main reason why projects fail” (1aPmMa)

The familiar issues such as ‘inadequate planning’, ‘unrealistic time frame’/ and lack of proper procedure’, and ‘supply side’ of the projects were frequently emerging in the conversations. As one commented, “ we all agree …. I am sure that with large projects. Especially those with the reliance on foreign equipment and supplies…. The delay becomes inevitable” (2bDirRi). Participants could recall projects and cases where for example, unrealistic time frame could be blamed for the failure to achieve the goals of the project in time, As one manager commented;

> “Unrealistic time frames and this can be the result of not consulting with supervisors and bringing them into the decision making…Project [Alpha] was typical of this kind of negligence… plans were dropped on us without consultation… we are on the ground and we know how much time is needs for installation of each component….but they [senior project director] has different ideas” (8hPengJe).

A project director also concurred with this view, He commented,

> Failure in planning and selecting the right contractors are the main causes for project to fail, Planning needs to be in detail and constantly

revisited as new factors come to light. We adopt the traditional 'blue print' type sometimes. Once plans are made. They are written in stone and you got to move around them instead of changing them to suit the situation… it is crazy". (5eDirAl).

Not surprisingly, the 'budget' or indeed the lack of it seemed to be one of the major culprits when it came to project failures; For example, as one commented;

> "Chiefly, this is down to failing to manage the budget effectively. There have been more serious problems in the past but we now manage our budget quite efficiently especially by minimizing wastage….but it can be stressful too… keeping the cost down it's not easy" (12lDcmAl)

A project manager linked the two; 'cost and stress' together;

> "The main cause is Stress. Managers are often under a lot of stress to keep the project moving and to keep costs down. Some managers have to take time off due to stress and this can slow down the project….it is a problem…It goes back to what we discussed earlier… nobody likes to fail… we have a reputation to think of …you know better in our culture….it is look bad on us" (3cPmJe)

Whilst budget, lack of it, and its mismanagement seem to be generate a lot of emotional response two reasons for the project failure namely; leadership/management skills for prioritisation and lack of staff clearly provided an 'controversial subject' to report. A manager reported;

> "Management skills… Greater skills of prioritization. Some team members have yet to learn that there are times when whatever

> you are working on should be shelved for the time being in order to deal with more urgent tasks. It is a real problem to get a team member to realize this as you often receive a response like 'Oh, I am busy on such and such a problem', when this is not so urgent. Sometimes it feels like rearranging the deckchairs on the Titanic [Laughs a little]" (11kApmMa).

It was interesting to observe that most comments related to 'managerial or leadership in competencies' were attributed reported to be others' characteristics and not themselves.

"We have seen how they mismanage the work… they need training… and a lot of it" (14nApMDa). Clearly the impression given that blame for lack of managerial competencies and skills were placed on others. The subject of the lack resources seems to generate a great deal of interest among the participants. As one manager explained in some detail;

> "We need more staff members and I could do with an assistant manager with whom I can share my knowledge and experience. What would happen if I became ill? There is no one who is currently experienced enough to take over. This is a task for senior management and HRM" (10jDcmMa).

Another Engineer explained, "Inadequate staffing levels. We are under enormous pressure here." (9iPgMa).

The comment made by one project managers was revealing. It seem to link a few concerns together. It was said,

> "The senior management take on too much…I mean too many projects without properly consulting or investigating the resources… you can get the suppliers to give you what you need

and eventually will arrive but when you need people, staff and experienced one there are not many of them about to be spared…..you could say it is lack of planning, assessing human resources needed, …and the volume of work" (7gPengAl).

Overall, the explanations provided by managers involved seem to point to the general view reported in the literature that many IT systems implementation in developing countries had been deemed to have failed either partially or totally Heeks (2002) for reasons outlined above. It also seems plausible that a large portion of these projects are IT projects (Shead, 2013). Naturally, the causes for project incompletion or failure are discovered after the effect (Al-Ahmad, 2012).

ISSUE 1: Findings

- *Poor communication, inability to plan, manage finance, lack of commitment and inadequate planning seem to be the causes for project failure that were also related to require management competencies for project implementation.*
- *Where ever managerial and leadership were discussed, the impression given was that this inadequacy was attributed to others and not the self*
- *Inadequate budgets and the need to reduce cost seem to a popular response on the part of the others. Having to cut cost was found to be a stressful exercise.*
- *Lack of staff seems to be the reason for many delays.*
- *Delays on the part of the suppliers was also a major cause especially in relation to large projects with tight time frame.*

5.6.1.2 ISSUE No. 2: Avoiding Project failures

To further ascertain the reasons for failure the participants were asked to elaborate on this question; what factors have contributed to the failure of the projects that you are familiar with? And whether these factors could be avoided? The responses received partly confirmed the observations made by the researcher and the accounts provided when the participants were asked about the reason behind failure or reasons for success of the projects. Having said that, the qualitative data generated was relevant and provided better understanding of the reasons for so many failures in IT projects.

It must be noted that only one senior manager claimed that he has never experienced project failure. He commented;

> "I am fortunate in never having experienced a project failure. Although one of them came very close it was a time over run of 8 months which some would consider a failure, however part of the reason for the delay was outside of my control. The project did deliver on all functionalities and within budget so I don't think that counts as a failure" (5eDirAI).

It was revealing to see that between 'time overrun' and 'cost overrun', the latter is perceived as 'failure' and not eh former.

Besides the above account; four more issues emerged from the data generated. These included; Cost (budget), Leadership and motivation, Unrealistic time and expectation, and stress. These factors combined seem to contribute to the project failures.

As indicated above, managing cost and issue of budget allocated to the project seemed to generate great deal of concern. For example, as a senior managers commented;

> "From personal experience the costing of the projects needs to be done carefully with suitable margins for changes in costs. If the budget is drawn up so that it is too tight it may result in the project failing" (6fDirDa).

This concern was also echoed by other participants. For example; a managers said "Well, fluctuations in currency can create problems especially when budgets are tight" and the response to second question was;

> "It is difficult to see how? Sometimes currency exchange works in your favour and sometimes it works against you. The US dollar is now quite high and we are still reliant on US suppliers. Keeping to budget is often like squaring the circle, but generally we are managing." (12lDcmAl).

Another participant confirmed that; "Budget overspends has been a problem at times. …Honestly, I think this would be difficult" (14nApmDa).

The issue of leadership, supervision and motivation were brought up by the participants. Previously these issues were mainly referred to 'management of the project and staff'. An engineer manager said;

> "In one case, it was mainly due to poor leadership skills on the part of the project manager the manager was quite autocratic and did not allow his team members the scope to make even minor decisions. This is not a good way to manage as it leads to lack of openness and lack of initiative. Also, this manager was prone to blaming other team members when things didn't work out" and "Yes [it could be avoided], through the company carefully appointing only on merit and performance. There have been

some disastrous appointments of managers which ultimately resulted in costly failures" (4dPengRi).

Another participant felt that in adequate supervision is to be blamed for project failures;

He said; "I think that supervisors are very important because they are in contact with team members on a daily basis. Supervisors are also good for motivating people and can talk to individual workers on a one to one basis". And "Yes, of course [it could be avoided] especially through good supervision" (2bDirRi).

Another project manager echoed the same concern;

"The essential thing is good leadership, that a manager has the respect of his team members and is able to lead them through every stage and to manage crisis situations with calmness and confidence, I have seen projects fail because of poor leadership" And "Of course [it can be avoided] through proper training in leadership" (1aPmMa).

Other related issue related to the leadership and team management was ability of the manager to 'motivate others'. For example, as an application manager pointed out

"Motivating the team to meet deadlines, mostly this is done but often at the sacrifice of working weekends to meet targets. But I don't really like asking people to give up quality time they need to spend with their families. Yes, of course. And we mostly do avoid failures by a well-motivated workforce" (11kApmMa).

The next important issue emerged was the ‘unrealistic expectation on the part of the superiors and planners and the projects. Which often cause stress for the project managers involved.

For example,

> “Unrealistic time frames for various phases of our operations this results in placing staff members under pressure and this leads to stress. We need more staff if these timelines are to be met”. “ Yes, by a better system of working out the staffing levels required. Currently there is no slack in the system. When staffs are absent this increases the pressure on others” (10JDcmMa)

The issue of ‘absenteeism’ seemed to be a significant concern for some managers. For example;

> “There are sometimes high levels of absenteeism due to work related stress. While it is important for people to have time off when they are suffering from stress, it needs to be better managed to avoid hold ups due to staff illnesses. Also, health and safety needs to be improved by making people more aware of hazards that can arise. Yes, [it can be avoided] by having coordinated training sessions at various stages.”(7gpengje).

The stress full nature of the work resulting from unrealistic expectation and ‘loss of control’ seem to cause both absenteeism and some time was seen as ‘unavoidable’. An engineer managers said;

> “I think stress is a big problem as there is pressure on us to keep to schedule. I worry when I am behind schedule which is beyond my direct control……Maybe not [cannot be avoided], maybe the time schedules need looking at again and a more generous allocation of time to

complete some of the more difficult problems related to infrastructure and supply of components" (8hPengJe).

On the whole, the emergence of the above issues helped to better understand the factor causing the failure and their interrelationship with other issues already commented on by the participants.

ISSUE 2: Findings

- *Between 'time overrun' and 'cost overrun', the latter is perceived as 'failure' and not the former*
- *Four main group of factors were attributed to project failures; Cost and Budget; Leadership and motivation, Unrealistic expectation and timeline; and stress*
- *Cost of the implementation seems to be more than the budget allocated.*
- *The issue of 'leadership' also was reflected in supervision and motivation of the staff*
- *Unrealistic expectation on the part of the senior managers and planners seemed to be the cause for excessive stress, absenteeism hence the failure of the projects.*
- *In most cases the failure of the projects were seen as 'avoidable'.*

5.6.1.3 ISSUE No. 3: Similarities with other public sector organizations

The responses to the whether there are 'similarities with other public sector organizations' could be classified in two group; those which find the similarities and those who were not really aware of this issue.

The former group of the participants generally saw a rationale for project failures across the board 'Public Sector'. For example, a manager commented "I

think so. After all, most organisations have the same problems with IT projects. “Solutions are not so easy to find, though” (12lDcmAl).Another participants commented “Yes, many organisations have the similar problems with IT projects” (14nApmDa).

A project manager pointed to the fact that awareness of the participants comes from the reports and what is mentioned in the papers (News Papers), however, it is not easy to ascertain the main causes to conclude the similarities between the project failures across the sector.

> “We can definitely learn from the experiences of other organisations. We can read up reports but we have to read between the lines and make certain assumptions as these reports are not always open and candid. …people tend to hide their mistakes and that is problem. We really don’t know what is going on and we can’t learn from them. But, .yes definitely” (10JDcmMa).

Another participant echoed the same opinion in so far as the learning from other projects is concerned. He said;

> “Yes, other organisations have similar projects and it is often worth reading their reports where this is available so that lessons can be learned” (7gpengAl).

On the whole, it was there seemed to be similarities but the participants either were no aware or simply could not trust the reported materials in the media.

ISSUE 3: Findings

- *Some participants felt there are similarities between organizations and the nature of the IT projects thus logically the causes for their failure could be similar.*
- *Because of similarities learning can be made from other PS organizations.*
- *The reported project failures and their causes in the media (newspapers) cannot be relied on.*

5.6.1.4 ISSUE No. 4: Interdepartmental cooperation

An issue that emerged from the data in response the this question is worth mentioning here. The question was "Would you consider lack of cooperation between departments as a reason for project failure?" . Most participants responded strongly by say "yes definitely" and then proceeded with a fuller explanation. For example, the project engineer said;

> "Definitely, in one situation there was a "them and us" attitude between two departments and as a result there were failures to communicate important information which caused a whole unit to completely break down. It is such a pity when breakdowns happen which could have been avoided through better communications"

Another participant indicated to the potential problems if there is lack of positive relationship between the departments. He said;

> "Yes, this can be a problem. A recent example I experienced was the result of lack of cooperation between spare parts stores and the purchasing department which

resulted in the project being delayed due to the lack of essential components " (1aPmMe).

The comment made by one participant suggested that the problem of lack of cooperation between the departments has been noticed and senior management are 'looking into it'. He commented;

> "Some departments are too inward looking and fail to see the complete picture. There are senior managers who are currently looking into departmental culture and how to broaden this" (10DcmMa).

Another manager also concurred with this view.

> "The main problem is for each department to see the greater picture and not be too inwardly focused" (14nApmDa).

Overall the responses suggested that there are instances of lack of cooperation between the department and this issue could be dealt with if the projects are seen as "belonging to one individual or a department" (6fDirDa). Interestingly, the view seemed to be shared amongst more senior managers that the less experienced one.

ISSUE 4: Findings

- *There seemed to be lack of cooperation between the departments which adversely impact the project completion hence the delay.*
- *Lack of cooperation between the departments is partly due to inability to see the NGHA as a whole. Senior project managers had a better over view of the organization requirements.*
- *Senior management of the organization were aware of the issue*

5.7. THEME FIVE: FOLLOW-UP STRATEGIES

5.7.1 Emergent Themes and Issues

- The thematic analysis also led to emergence of a number theme and sub themes (issues) of which the follow up strategies (suggestions made by the participants) for improving the situation one of the important category of the data (See Table 5.3 and 5.10). The analysis of the responses received in connection with the question 'how to improve the situation' led to emergence of 2 interrelated issues, namely, 'past formal project management/*training', 'Essential Training and Development for Future', . These will be discussed in this section.*

Table 5.10: Emergent Themes (Categories) and Issues in the 'Project Success'

No.	Main Themes	Issues
5	Follow-up strategies	• Past Project Management/Training • Essential Training Development for future

Source: Data analysis

5.7.1.1 ISSUE No. 1: Past Project Management/Training

The interviews revealed that participants also see the training and development as a viable strategy (Al-Turki, 2011). The responses provided suggested that all managers have received some for of training/education in the past however, managers have mainly one category of training namely task –related, which is mainly concern with technical issues (Analoui, 2002).These included PACs distance learning" (8hPengJe); "Project management training" (4dPengRi), and

“ Part-time education in organization and project cultures” (10jDcmMa). It was clear that participants were aware of the importance of the education for their role and their career development. As one of the participants commented,

> “IT is different from other situation, our knowledge and skills can get outdated very quickly and to be honest we are updating our knowledge all the time. It would have been advantageous if advanced IT seminars and conferences could be arranged on regular basis. What we are lacking though is skills to do with managing and leading projects… some colleagues think there has not been any change or development in the subject (Project Management), still thinking in technical term? …” (11kApmMa).

Another manager supported this view and commented;

> “ we are good at our job and IT… we need skills that can help us to manage people and projects in a stressful situation… the dealing with suppliers, different department … yes we may all need a bit financial training from time to time ….but it is all about management” (5eDirDa).

On the whole participants showed that they have been and are being exposed to training however, this is not taking place on a regular basis.

ISSUE 1: Findings

- *All managers reported to have past training /education in IT, PM and relevant topics to their specialization.*
- *Many participants were actively involved in continuing with their training nd education on part-time basis.*
- *Participant differentiated between task related and management training and development for ensuring the completion of the projects in time and within budget.*
- *Advanced regular training and development in IT and new advances in their field would be welcomed.*

5.7.1.2 ISSUE No. 2: Essential Training Development for future

Interestingly, the participants comment suggested that they question the way training and development are organized and offered to them. As one commented;

> "For a completely new system, of course there is a need for training. This training is not really properly coordinated at the moment. We have expressed this view to management" (8hPengJe)

Another participants questioned the wisdom of offering course of training without carrying out proper 'Gap-Analysis'. He said;

> "First, it is necessary to identify where there are gaps and where failures are happening in order to identify what training is required. But anything which improves communications within the organisation would greatly improve project implementation" (4dPengRi).

The issue of proper identification of the training development need was shared by many managers, Another managers commented;

> "Any training and development should be in response to a proper Training Needs Analysis. It should not be done simply because everyone does it but it should be very focused on the needs of individuals in terms of their tasks in the project".

Besides above, most managers felt that topics such as project management leadership, communication, financial management, stress and time management, liaising with other departments and dealing with planning projects are not only important to deal with 'people-side of the project . A manager explained;

> "Finance and accounting is surely essential for every manager but so is the leadership and ability to communication effectively… we all good at the technical side and when it comes to people, we think we are good but sometimes we fail miserably" (6fDirDa).

Prioritization and ability to work under stress were often mentioned by those involved in managing IT projects. As one explained;

> "It is a must for everyone to learn how to manage the time and prioritize their work. we are all busy and it becomes even more important to learn to put things in perspective and do things in their proper place…..I believe it is lack of planning skills" (9iPengJe).

Some participants felt that it is essential for their superiors to learn to 'manage' their expectations and allow for some mishaps. A manager commented;

> " They [senior management need training how to manage their expectations, we are short of human resources and everyone is aware of it.. Suppliers and contractors are sometimes late, people get sick, and projects in distance… they all add to pressure and delay they need training to not to be so unrealistic about projects and their implementation"(13mDcmAl)

Overall Participants responses that training and development in both task and people related areas (Analoui, 2002) can be a viable investment and strategy for improving the present situation. This is also in line with the extant literature that project management training in general (Eve, 2007) especially in targeted form (Al-Turki, 2011) supported by top management can 'make the difference' (Van Dijk. 2009; Al-Mudimigh et al., 2011).

ISSUE 2: Findings

- *Participants felt that present strategy to training and development is not systematic.*
- *Managers were aware of the importance of training as being essential as a strategy to enable staff to implement IT projects successfully.*
- *The task related topics such as finance and planning were seen as important, however, by and large they felt that skills and competencies such as communication, leadership, prioritization, and managing interdepartmental liaison are essential for getting projects implemented in time and within budget.*
- *Participants felt that their superior ought to benefit from development in the fields of realistic planning, budgeting, and communication at all levels within the organization and in relation to projects.*

5.8. THEME SIX: DISSEMINATION OF RESULTS

5.8.1 Emergent Themes and Issues

Another small but important category of data related to the theme of 'dissemination of the results of this study'. The participants were asked; 'would you like to be informed about the results of the study'? This led to emergence one issue led to emergence of one issue namely: 'request for results' (See Table 5.11).

Table 5.11: Emergent Themes (Categories) and Issues in the 'Project Success'

No.	Main Themes	Issues
6	Dissemination of the results	• Request of the findings

Source: Data analysis

5.8.1.1 ISSUE No. 1: Request for the findings

Analysis of the data generated showed that all participants were interested in the result of this study. The all requested a summary of the findings from the researcher. Whilst the fact that almost every one showed interest in the result was deemed interesting some of comments make revealed the need for further similar empirical study in this field.

Comments such as " like to be informed… it is interesting" (5eDirDa), or " yes, it is not often we are involved in a study like this…relevant to our work…certainly need a copy" (9iPengMa) showed their interest in the study and the results. One interesting comment became thought provoking.

“Make sure..[holding taping on the researchers’ shoulder-a sign of affection culturally] they [meaning senior management] and help them to learn what to do with it [Smiling as leaving]”

(12lDcmAl).

ISSUE 1: Findings

- *All participants showed interest in the result (findings) of the study.*
- *Participants felt it is important learn from this first time study in NGHA*
- *Some participants indicated that management should be informed about the results and its implications.*

5.9 ISSUES IDENTIFIED

The issues identified in each category highlighted the aspects of the project implementation, its success and failure, organizational and social and political realities that Board members dealt with in their daily life as well as whilst operating on the Board. As explained earlier, identification of the main themes although necessary and important do not by themselves constitute the findings of the qualitative study (Silverman, 1970, 2005). The analysis should involve understanding the meanings that participants attribute to actions and interactions in order to understand the values and standards with which they interpret their personal experiences. Thus in the same way that issues emerge from main categories of the data, findings are formed and emerge from the issues identified. These findings should be considered in personal, organizational and external contexts and indeed they reflect the realties as experienced by the participants.

The findings of the study thus far have varied according to the issues that have emerged. Whiles some resulted in identification of 2-3 findings others yielded 8-10 findings. These finding have been assimilated and presented in Table 5.12

- Age
- Gender
- Education
- Years of experience work experience
- Years of involvement in implementation of IT Projects
- Project position

Table 5.12: Summary themes, issues and findings of the analysis

No.	**MAIN CATERGORIES THEME**	**EMERGED ISSUES**	**FINDINGS**
1	PERSONAL CHARACTERISTICS	Age (1)	1. *Majority of the participants were aged 31-40* 2. *Unlike other projects in public sector IT projects can be managed by relatively younger participants.* 3. *Often it is the accumulated experience and the qualification on the part of the participants rather than the 'age' which determines the choice of appointment for managing IT projects.* 4. *Traditionally age may mean experience however, this may not apply to management of the IT projects at NGHA*
		Gender (2)	1. *There are fewer female project managers and engineers in charge of the IT projects* 2. *The bigger the project/programme the more the*

			likelihood that a male experienced project managers is allocated to the task. 3. *The 'completion' of the task and 'getting results' seems to be attributed to male project managers*
		Education (3)	1. *Most participants possessed a first postgraduate diploma and masters* 2. *Almost half participants possessed Master degrees* 3. *Three quarter of the participants possessed degrees in project and program management.* 4. *Participants welcomed the opportunity for obtaining a higher degree to secure promotion.* 5. *The trend is upwards obtaining Masters Qualification.* 6. *Qualification alone with the adequate and relevant experience does not guarantee securing the positon for managing project.*
		Years of experience work experience (4)	1. *Most participants had between 6 to 10 years of work experience (10 out of 14) only 4 participants had between 11-15 years of experience.* 2. *Almost all participants felt that work experience is essential for getting to know the job and gaining relevant experience* 3. *It was felt that an initial period of 4-5 years of experience is essential for becoming seriously involved in leading IT projects.* 4. *Participants with over 10 years of experience in the industry felt that their experience can form a basis for recognition of their expertise hence the ability to lead an IT project.*

		Years of involvement in implementation of IT Projects (5)	1. *Participants had between 5 and 18 years of project related experience.* 2. *Working on IT implementation projects and programmes were seen as 'real' work hence valued as an achievement.* 3. *There seem to be a connection between years of work experience and the years of work experience and the relevant experience gained through involvement in the projects.* 4. *The involvement in the project was not always a choice; working in IT department often necessitated getting involved in project implementations.*
		Project position (6)	1. Madinah 2. Riyadh 3. Dammam 4. Al Hassa 5. Jeddah

2	PROJECT IMPLIMENTATION	Size of the project (1)	1. *The size of the project is defined by the size of the investment involved; Small, up to 100,000RS, Medium, 900,000 RS, and large 1000, 000RS and over* 2. *The seems to be a gradual and incremental progress to management from small to large projects* 3. *Being involved in large projects bring with it higher recognition and status, however, the participants are aware of the risk of the failure 9incompletion) associated with large projects.*

		Bidding and contracting (2)	1. *All participants were aware of the 'bidding and contracting' processes involved in awarding the projects.* 2. *The process is viewed as 'open and transparent' and involves joint consultation of both the department and the 'contract management department'.* 3. *The short listing is carried out by the HR and the concerned department.* 4. *Most participants believe that 'quality' should be the main concern and not the 'cost'; however, there those who believe quality should not override the reality of 'cost' involved.* 5. *Projects are only partly contracted to outside firms* 6. *USA, Canada, and South Korea are amongst more notable countries with which NGHA has dealings.*
		Organization/ department role (3)	1. *The departments and individual managers were held responsible for some aspect (depending on the specialization and nature of department) or all aspects of the project (for example Directors).* 2. *Creating relationship with contractors and sub-contractors and the implementing teams and department were the responsibilities of the project managers.* 3. *The role of the department is to oversee, manage and monitor the activities and progress of the project*
		Influencing factors (4)	1. *Three groups of influences for project implementations were identified. These included; Individual, Organisational and External.*

			2. *The lack of knowledge, indiscipline, and lack of training and liaison with others were suggested as the main individual and organisational factors for delays in project implementation. Moreover, the relationship with consultant, in ability to get the resources and professional support on time and finally the economic and political factors were seen as responsible for adversely affecting the implementation of projects.* 3. *Participants are aware of the influences of the tradition, Islamic values and rituals on their behaviour, interaction with others at work.* 4. *Tradition and rituals have influence on the ways individual managers interact at work and go about implementing the projects..* 5. *Amongst the traditions and social values which affected the Board effectiveness, 'Respect', 'Respect for elders', 'Honesty' and 'Sharing' seemed to be the most influential* 6. *Islamic values are adopted in daily life as well as well as at work.* 7. *Islamic values fosters trust, honesty, integrity and hard work* 8. *Islamic life values and code of ethics determines the foundation of members' behaviour in particular and the work relationships as the whole.* 9. *Some participants felt the other do not subscribe to religious values as they should*

3	PROJECT SUCCESS	Criteria for success (1)	1. *Time and the need for completion of the project seems to be the main concern (criterion) for the*

			success of the projects 2. *Cost and being able to implement the project within allocated budget was another criterion for success of projects.* 3. *Quality of the work seemed to override other concerns since it became an integral part of time and cost criteria for the participants* 4. *Adequate human resources were mentioned in relation to training end users and getting job done on time.*
		Planning process (2)	1. *All participants saw planning as an important aspect for success of the projects* 2. *Participants felt that plans need to be 'realistic' especially as far as 'time' needed for and 'budgeted' and 'logistics' needed for it successful implementation.* 3. *There seems to be a feeling that implementing managers are not adequate consulted during the planning stage.*
		Role and experience of managers (3)	1. *All participants showed awareness of the importance of the role of the project manager in ensuring the success of the projects.* 2. *The role of the project manager is often viewed in terms of the qualities that they ought to possess such as leadership, ability communicate, and dealing and managing teams* 3. *Ability to work as team member, managing team came across as an important ability/skill on the part of the manager.* 4. *All participant regarded team work 'essential' for*

			success of the projects.

4	PROJECT FAILURE	Causes of failure (1)	1. *Poor communication, inability to plan, manage finance, lack of commitment and inadequate planning seem to be the causes for project failure that were also related to require management competencies for project implementation.* 2. *Where ever managerial and leadership were discussed, the impression given was that this inadequacy was attributed to others and not the self* 3. *Inadequate budgets and the need to reduce cost seem to a popular response on the part of the others. Having to cut cost was found to be a stressful exercise.* 4. *Lack of staff seems to be the reason for many delays.* 5. *Delays on the part of the suppliers was also a major cause especially in relation to large projects with tight time frame.*
		Avoiding Project failures **(2)**	1. *between 'time overrun' and 'cost overrun', the latter is perceived as 'failure' and not eh former* 2. *Four main group of factors were attributed to project failures; Cost and Budget; Leadership and motivation, Unrealistic expectation and timeline; and stress* 3. *Cost of the implementation seems to be more than the budget allocated.* 4. *The issue of 'leadership' also was reflected in supervision and motivation of the staff* 5. *Unrealistic expectation on the part of the senior*

			managers and planners seemed to be the cause for excessive stress, absenteeism hence the failure of the projects. 6. *In most cases the failure of the projects were seen as 'avoidable'.*
		Similarities with other public sector organizations (3)	1. *Some participants felt there are similarities between organizations and the nature of the IT projects thus logically the causes for their failure could be similar.* 2. *Because of similarities learning can be made from other PS organsiation.* 3. *The reported project failures and their causes in the media (newspapers) cannot be relied on.*
		Interdepartmental cooperation **(4)**	1. *There seemed to be lack of cooperation between the departments which adversely impact the project completion hence the delay.* 2. *Lack of cooperation between the departments is partly due to inability to see the NGHA as a whole. Senior project managers had a better over view of the organization requirements.* 3. *Senior management of the organization were aware of the issue*
5	FOLLOW-UP STRATEGIES	Past Project Management/ Training (1)	1. *All managers reported to have past training /education in IT, PM and relevant topics to their specialization.* 2. *Many participants were actively involved in continuing with their training nd education on part-time basis.* 3. *Participant differentiated between task related and management training and development for*

			ensuring the completion of the projects in time and within budget. 4. *Advanced regular training and development in IT and new advances in their field would be welcomed.*
		Essential Training Development for future (20	1. *Participants felt that present strategy to training and development is not systematic.* 2. *Managers were aware of the importance of training as being essential as a strategy to enable staff to implement IT projects successfully.* 3. *The task related topics such as finance and planning were seen as important, however, by and large they felt that skills and competencies such as communication, leadership, prioritization, and managing interdepartmental liaison are essential for getting projects implemented in time and within budget.* 4. *Participants felt that their superior ought to benefit from development in the fields of realistic planning, budgeting, and communication at all levels within the organization and in relation to projects.*
6	DISSEMINATION OF RESULTS	Request of the findings	1. *All participants showed interest in the result (findings) of the study.* 2. *Participants felt it is important learn from this first time study in NGHA* 3. *Some participants indicated that management should be informed about the results and its implications.*

Source: Data Analysis

5.10 SUMMARY

Presentation of data, analysis and findings presents a major challenge for a qualitative research. Thus to simplify the process classification of the data was attempted. This led to regions and 14 interviews, and seven groupings of the data.

Following the preliminary classification and tabulation of the collected data, the data extracted from the interviews were subjected to two processes; First Open Coding and then to Axial Coding. These processes were attempted to in order analyse the qualitative data to bring together the data and ideas. During this process the researcher identified tentative names of emergent conceptual categories. The aim was to create detailed but broad categories to form a preliminary framework for analysis of the data. However, instead of searching for words, the phases and parts of the conversations with common themes were targeted. This resulted on seven open coding which was shared throughout the interview accounts by all interviewees. Thus open coding was used to reduce the data as well as identifying the conceptual main categories or themes. Sifting through each main category's sub-themes, categories of the data were identified.

Axial coding formed the next stage of the analysis of the interview's transcripts. It involved the re-examination of the main and sub categories identified to determine how they are linked. These groupings of the data were referred to as 'issues' which formed the smaller branches of the tree of data. These form the smallest branches of the seven main branches of the themes identified via data analysis. Therefore the qualitative data generated was been subjected to a

thematic analysis which resulted in a complete ‘tree of information’ in which the position of each main theme, sub theme and ‘issue’ represent the first main branches, second branches and the final smaller branches. Understanding the effectiveness of the Boards as perceived by the participants has shaped the tree of the data. The researcher believes that the traditional approach which only endeavours the identification of the main themes may not present the fullness of the thematic analysis as it has been carried out here in this study.

Further analysis led to the identification sub theme categories (issues). Certainly the emerged issues indicate that understanding the reasons behind failure and success of the IT projects requires understanding the characteristics, the implementation, the success factors, the causes of failure, the follow-up strategies, and the dissemination of the findings. The degree to which these influences influenced the success and failure of the IT projects will be discussed in the next chapter.

Chapter Six

Discussion

6.1 Introduction

This chapter presents a discussion of the main findings of this work and offers an overall answer to the main research question - What factors contribute to success/failure of the IT projects in National Guard Health Affairs? Ultimately, the consideration of the key findings of this doctoral research and the main research question led the researcher to construct a conceptual model as the theoretical contribution of this work.

This chapter is structured as follows:

First, the key aspects of the debate with respect to project successes and failures are revisited and discussed. Second, the pertinent findings with respect to the reasons for project success and failure within NGHA are considered, and compared and contrasted with the relevant literature. Following this, participants recommendations for how project implementation could be improved are discussed. This chapter is concluded with two conceptual models that captures the key findings of this work. The first presents a generic model of project success and failure, the second presents a model of success and failure that is tailored to the specific context of the NGHA.

6.2 Summary of the debate on project success and failure

As noted, previous research has found that IT projects within Saudi Arabia have a failure rate of 52% (Alfaadel et al, 2008). While numerous studies of IT project successes and failures have been conducted in other countries and contexts

few have been conducted within Saudi Arabia (Alfaadel et al, 2008). Although scholars examining project success and failure have determined a wide range of factors that may lead to success and failure – the relevance of these studies for the present case is questionable. As Altuwaniji (2011) highlights, a great importance must be placed on the situationality and localisation of project planning and implementation processes when conducting research and interpreting findings. Thus, the factors that are relevant within one context may not be transferable to another. Given that the majority of the extent literature is based on studies within the Western hemisphere, where the culture is markedly different, it is unsurprising that there are differences in the findings of this study.

The factors that have been identified as leading to success and failure within the literature are numerous. With respect to the former, success factors include effective planning, support and guidance from senior managers and leaders (Eve, 2007; Senior and Flemming, 2010; Al-Turki, 2011); the ability of project leaders to manage the scope, quality, cost, time and project resources (Wysocki and McGray, 2003); effective management skills amongst project leaders (Senior and Flemming, 2010); trust between project team members (Jenewein and Morhart, 2008); effective corporate governance (Haspeslagh, 2010); and following a standard methodology (Derksen and Noordam, 2006).

Failure factors include a lack of effective planning (Asay, 2008); inability to manage project costs and requisite resources, inaccurate and ineffective risk management, and a lack of requisite skills and competencies amongst project team members (Lock, 2007); failure to manage contractors (Assaf et al, 2013); absence of ownership and communication of knowledge, poor systems of

monitoring performance, scope creep, a myopic view of IT, and poor strategies for change management (Al-Mashari and Al-Mudimigh, 2003).

Further, numerous authors have suggested there are a number of pertinent critical success factors for the management of IT projects (Reel, 1999; Al-Mudimigh et al, 2011) others have identified typologies of critical risk factors (Evans, et al. 2002; Beenker, 2004; Van Dijk, 2009).

As noted within Chapter 2, although there are areas of agreement, different studies appear to prioritise different aspects of IT project success and failure. There are a number of ways in which these diverse concerns can be interpreted. First, following Altuwaniji (2011) it may be argued that the differences can be explained by the different concerns and issues that are prevalent within the context of the studies. Thus, the specific nature of the context in which the studies have been undertaken have led to the emergence of different salient factors for success and failure.

A second interpretation is that success and failure are contested concepts. As highlighted within Chapter 2, there are numerous ways in which project successes and failures can be understood. For example, Noordam et al (2007) are concerned with budget, time, and whether the systems delivers its intended functionality; cost and time overruns are stressed by Jones and Northrop (1996a); May (1998) prioritises quality problems in addition to cost and time overrun; Flowers (1996) suggests that failure is indicated by any of the following - sub-optimal functionality, a non-user friendly system and failure to provide value for money.

Others such as Van Dijk (2009) argue for a scaled approach to examining success and failure, the implication being that success and failure is not a binary issue. Thus, it might be argued that the manner in which success and failure and conceptualised will influence the manner in which researcher's direct their efforts. Indeed, as Frankfort-Nachmias and Nachmias (2007) note, the way a researcher conceptualises a phenomenon influences the way in which it is investigated and the manner in which subsequent observations and experiences are classified.

6.3 Discussion of findings with respect to project success and failure

The central aim of this doctoral thesis was to critically explore the reasons why some certain IT projects fail and others succeed in the NGHA. The principal question advanced in accordance with this aim was: What factors contribute to the success and failure of IT projects in NGHA?

Having presented an analysis of the findings of this work within the previous chapter it is now possible to provide an answer to this question. A consideration of the findings of this research have led to the construction of a conceptual model (see Figure 6.1) that captures these findings, and provides a diagrammatic representation of the factors that contribute to the success and failure of IT projects within NGHA.

It is argued that the key factors could be grouped into three categories: external factors, organisational factors, and individual factors. The manner in which the arrangement and confluence of these factors may lead to project success or failure is considered in the remainder of this chapter. However, first, it is

necessary to explore how project success and failure is understood by participants within NGHA.

6.3.1 Conceptualising project success and failure

As noted above and within Chapter 2, there are a variety of ways to conceptualise the notions of project success and failure. Following from the interpretivist approach adopted within this work it is necessary to understand what participants perceive by the notions of project success and failure. That is, it is recognised that there is no one 'correct' way to characterise success and failure, rather, the interpretations that participants posit are equally valid and relevant.

The findings with respect to project success revealed something of a consensus with eight of the fourteen participants highlighting the importance of keeping within the planned time constraints as being the primary criteria for success. Participants that expressed this view also tended to occupy more senior organisational positions. These participants noted that when projects overran with respect to time this impacted the start times of other scheduled projects within the pipeline. Thus, not completing projects on time can have serious effects on the work of the organisation and its ability to meet its goals.

However, many of those who emphasised the importance of completing projects within a timely fashion also noted the importance of managing cost and ensuring that projects were completed within budget. Indeed, throughout the interviews, participants prioritised one or other of these additional criteria. The quality of projects was also noted and highlighted by participants. Quality was

interpreted as being an overarching concern. That is, while it is desirable that projects are completed within allocated budgets and to schedule the projects must deliver sufficient quality.

These findings are consistent with the literature that has highlighted different conceptions of project success. For example, Noordam et al (2007) prioritise budget, time and functionality; Jones and Northrop (1996a) note the importance of staying within allocated costs and time frames; while May (1998) emphasises the importance of quality.

The discussion of project failure revealed that it was not conceptualised as a simple corollary of the conceptualisation of project success. Rather, project failure was deemed to occur by most participants when projects overran on cost, but not when they overran on time. As noted, large projects require input from a range of stakeholders including external contractors (Al-Khalili and Al-Ghafly, 1999; Noordam et al, 2007) and so one interpretation is that it may be recognised by participants that to some extent managing the time line of the project is not entirely within their scope of influence.

Thus, while there was some consensus, it is apparent that different participants had different conceptions of success and failure. However, regardless of where the emphasis was placed it was apparent that the three central concerns were time, cost, and quality. Thus, no firm conclusions can be drawn. Following the interpretivist position adopted within this doctoral research, the interpretations and judgements made of the social world by one participants is as equal and valid as any other.

What is clear from the discussion is that the three criteria that are important for judging success and failure of IT project implementation are the quality of the project, its timeliness and its cost.

6.3.2 External factors impacting project success and failure

The findings reveal three pertinent external factors that impacted project success and failure. Within this section external factors are understood as those that have their causes outside of the organisation and project management teams. The three pertinent external factors that have been identified are: Islamic values, external organisations, and the prevailing economic climate.

The external factors that was mentioned most frequently, and reported to be most important by participants was the role of Islamic values within the organisation. It was noted that Islamic values and traditions had significant impact on the behaviours and interactions of participants within the workplace. It was found that Islamic values influence the way that managers work and implement projects, and positively fostered values of trust, integrity and hard work. However, the importance placed on Islamic values may have also been a cause of discontent, with some participants feeling that other members of the organisation did not take these values as seriously as they should. Although not reported within this research, it may be reasonable to assume that this discontent flows both ways, with those members of the organisation who take Islamic values less seriously being displeased with those who do.

The importance that Islamic values can have in the workplace has been demonstrated by scholars in previous research (see for example Ali, 1992;

Yousef, 2001; Khan and Rasheed, 2015). Yousef (2001) undertook a survey of 425 Muslim employees within 30 organisations within the United Arab Emirates, and found a positive and significant relationship between Islamic work ethic and organisational commitment and job satisfaction. More recently, Khan and Rasheed (2015) completed a survey of 270 employees from seven project based organisations in Pakistan. They found that the Islamic work ethic acts as a moderating effect on project success within project based organisations.

A second external factor that was found to influence project success and failure was the working relationships with external organisations. The implementation of large projects often involves the use of sub-contractors (Al-Khalili and Al-Ghafly, 1999; Noordam et al, 2007) and it was found that such external organisations may not always complete work to schedule. Participants noted that a major cause of delays to the completion of projects was difficulties with suppliers who sometimes were unable to deliver goods/services on time.

The final external factor that emerged was the prevailing economic situation. The NGHA deals with external organisations within the USA, Canada, and South Korea. Participants noted that the NGHA is particularly reliant on US suppliers and so is heavily impacted by changes in currency exchange rates. This can have a significant impact on completing projects within allocated budgets and can be a cause of cost increases, and the resultant to reduce costs in other areas of the project.

6.3.3 Organisational factors impacting project success and failure

A number of organisational factors were determined that impact upon the success and failure of IT projects with the NGHA. These are discussed in detail below. Within this doctoral work, organisational factors are considered to be those that pertain at the level of the organisation, and that can be modified by the actions of the organisation.

First, it was found that there was a tendency to have male project managers to lead large projects within the NGHA. Participants expressed the view that male project managers were more likely to achieve success than female counterparts. The presence of male project managers being placed in charge of IT and development projects is likely not entirely accidental (Palmer, 1987; Momsen and Twonsend, 1987). The choice can be understood as a feature of the cultural and historical features of the society in which NGHA is located (De la Rosa, 2006; Analoui et al., 2011; Kakabadse, et al., 2004).

Furthermore, the trend towards having a greater number of males in leadership position is a worldwide phenomenon and is more pronounced towards the top of organisational hierarchies - it has further been suggested that this may have a detrimental impact on organisations (Northouse, 2014). It may also be entirely unwarranted, as it has been convincingly argued by a number of scholars that gender has little relationship to leadership effectiveness or style (Dobbins and Platz, 1986; van Engen, Leeden and Willemsen, 2001). Some scholars have suggested that female leaders may be better transformational leaders, and more likely to reduce conflict and improve productivity and innovation (Northouse, 2014). Thus, it could be argued that the propensity to have male

project managers within the NGHA may be inhibiting the success of the implementation of IT projects.

A second factor, and indeed a recurrent theme within this doctoral research was a lack of adequate human resources within the NGHA to successfully implement IT projects. Participants expressed the view that in some cases members of project teams lacked the necessary knowledge and skills to adequately perform their roles and functions. This is of course necessarily detrimental to success and a potential cause of failure. These findings are consistent with those of Lock (2007) and Smith (2008) who have stressed the importance of adequate knowledge and skills amongst project teams for the successful and timely completion of projects. Furthermore, some participants noted that members of the organisation lacked the necessary discipline to complete their tasks on time. The issue of a lack of skills is also partly related to the abilities of the project manager (discussed below), who is arguably responsible for ensuring that the project team has the requisite skills for the tasks undertaken (Lock, 2007). It is clear throughout the remainder of this section that there is a significant need for the NGHA to invest in adequate human resources to ensure project success and avoid failure.

The third emergent factor was the important role played by the project manager. Indeed, all participants demonstrated a cognizance that the project manager undertakes a crucial in ensuring that projects are successful. The project manager was deemed to need qualities and abilities with respect to leadership and management, communication, and the ability to foster team work amongst the project team. These findings are largely consistent with the literature that

has emphasised the role of the project manager (Evans et al, 2002; Smith, 2002; Beenker, 2004; Senior and Flemming, 2010).

It was noted by participants that effective project management was a factor that influenced success, while poor project management influence the likelihood of failure. Indeed, Smith (2008) has noted that project managers often lack the soft skills necessary to perform their roles - and that such skills are often neglected in their training. Further, Evans (2002) has commented that a significant risk factor for the failure of IT projects is a failure on the behalf of project managers to apply basic project management skills. Beenker (2004) has highlighted the poor communication of project managers as problematic, and Senior and Flemming (2010) have stressed the importance of the project manager being able to utilise the skills of the project team. Thus, consistent with the literature, it is argued that the findings of this doctoral research support the notion that the project manager is crucial to the success of the implementation of IT projects within NGHA. Equally, it is evident that poor project management on the part of project managers may lead to failure.

The fourth identified factor was the importance of proper planning of IT projects, including the provision of accurate timescales and adequate budgets. Participants noted that project plans needed to be realistic, especially with regard to the determination of timescales and the adequate provision of financial resources. It was reported that this was not always the casewithin the NGHA leading to difficulties with completing projects on time. In particular, when budgets were found to be inadequate for the completion of projects, and timescales too optimistic, this was found to lead to the need to reduce costs

which led to stress amongst the workforce and ultimately higher levels of absenteeism.

The importance of effective planning is well established within the literature (Beenker, 2004; Eve, 2007; Van Dijk, 2009) and it is recognised that an effective project plan is necessary for successful implementation of a project. One area in which a solution might be found is the proper consultation and involvement of project managers in the planning process. Participants often bemoaned a lack of consultation between project managers and those involved in the planning process. Arguably, this finding, when taking with the emergent theme of poor interdepartmental communication highlights that communication issues are somewhat rife within the NGHA, and a cause of project failure. While poor planning may be a cause of failure, it was, when done correctly reported to be a key factor for success. Provision of appropriate human and financial resources during the planning stage, and adequate timelines was found to be imperative for the successful and timely completion of projects. This finding is also consistent with the literature on the importance of planning (Beenker, 2004; Eve, 2007; Van Dijk, 2009

The fifth factor to emerge from the research was a lack of communication and cooperation between departments in the NGHA. This lack of cooperation was reported to lead to significant delays in the completion of projects and so was considered to be a significant cause of project failure.

This lack of cooperation was understood as being due to a prevalent perception amongst members of the organisation that the NGHA was not viewed as a

whole but rather as individual and discrete departments. This compartmentalisation is not uncommon, and many organisations have been found to *silo* their knowledge and workings within functional departmental lines (Goh, 2002).

Nonetheless, the importance of interdepartmental communication is well established. Gondal and Shahbaz (2012) have argued that interdepartmental communication is key for organisational performance, and Varona (1996) has demonstrated the relationship between employees satisfaction with communication and their organisational commitment. Furthermore, a number of authors have argued for the importance of interdepartmental communication for the successful implementation of IT projects (Al-Mashari and Al-Mudimigh, 2003; Robinson and Dilts, 1999; Stefanou, 1999; Somers and Nelson, 2001; Abouzahra , 2011; Ahmad and Cuenca, 2013).

Further, in their discussion of critical success factors important for the implementation of Enterprise Resource Planning software and systems implementation Ahmad and Cuenca (2013: 105) have argued that: "The implementation of such systems requires effective participation of the whole organisation. Despite of the awareness of the problems associated to ERP implementations, still the majority of enterprises failed due to the lack of their consideration of organisational factors such as interdepartmental communication and cooperation..."

While senior management within the NGHA were found to be aware of these concerns it is evident that not enough has been done to fully rectify the issue. A

range of options are available but it is arguable that the issue is one which must be resolved by senior leaders. Leaders are capable of inspiring and influencing the vision that employs have of the organisation, and their position within it (Kakabadse, Bank and Vinnicombe, 2004; Avolio, 2010; Northouse, 2014).

The sixth, and related factor, was unrealistic expectations and timelines from senior managers. It was found that participants often had to work to, and try to achieve unrealistic expectations. Participants noted that since a lack of adequate resources is an established issue within the organisation, senior managers need to ensure that their expectations are aligned with the realistic performance of the human resources available. Further, it was found that being compelled to work to unrealistic expectations led to significant stress amongst the members of project teams.

Stress can have a significant impact on individuals with an organisation. Moreover, one established cause of workplace stress is a negative workload Colligan and Higgins (2006) and high workplace demands (Karasek& Theorell, 1990; Mausner-Dorsch& Eaton, 2000). It is evident from the second, fourth and fifth factors identified that the NGHA has a range of issues which lead to increased stress amongst employees.

Individuals have a cognitive, behavioural, emotional and physical response to stressors within the workplace (Colligan and Higgins, 2006) and stress occurs as an interaction between an individual and a source of demand in their workplace (Long, 1995). Within the NGHA one of these sources of demand is reported to be the expectation that projects are completed within unrealistic

timeframes with the resources allocated. Cooligan and Higgins (2006: 96) note that stress in the workplace can lead to a range of organisational issues including "hostility in the workplace, low morale, interpersonal conflict, increased benefit expenses, decreased productivity, and increased absenteeism". Further, the Healthy and Safety Executive in the United Kingdom has reported that 13.5 million working days were lost to business in the United Kingdom in 2007/2008 due to work place stress (HSE, 2009). Thus, the findings of the present study are consistent with some of the prior research that has reported increased absenteeism as a result of stress.

The issue of increased absenteeism is arguably critical for the NGHA, which, as already highlighted often suffers from a lack of adequate human resources for ensuring the timely and successful completion of IT projects. Given that inadequate resources may lead to increased workloads, and that increased workloads may result in stress and thus absenteeism, it is evident that a destructive cycle may very well occur.

The literature offers a range of solutions that may be put in place by organisations to reduce workplace stress. Hurrelland Murphy (1996) have argued that these can be placed in to the three board categories. First, employers may seek to reduce the causes of stress within the workplace. Second, employers may seek to provide training for employees that will give them skills to help them to deal with the workplace stress and stressors that they face. Third, employers may provide rehabilitation and support for those employees that report that they are suffering from the impact of workplace stress.

Given that the causes of stress within the NGHA are inadequate human resources being available to project managers, and the unrealistic expectations held by senior management, it is argued by the researcher that the first of Hurrell and Murphy's (1996) strategies could be employed with success. Indeed, if adequate human resources were made available, and senior management expectations were brought in line with what is realistically possible, then the reported the causes of stress could be eliminated. This researcher expects that this would likely have the beneficial effects of reducing absenteeism, and therefore improving the success rate of the timely implementation of IT projects.

The seventh factor to emerge within the research were certain issues with leadership and motivation. Participants reported that good and effective leadership was important for project success. Effective leaders were reported by participants as being able to motivate others, and handle crises situations. Similarly, a lack of effective leadership was seen as a cause of project failure. Interesting, while there were a number of reports of ineffective leadership, participants always attributed this to others rather than themselves. The comments made my participants with respect to leadership cohere with the literature (Smith, 2008; Senior and Flemming, 2010).

While there are a multiplicity of definitions of leadership (Kent, 2005) it has been argued that certain features are common to a range of definitions and conceptualisations (Kabadse, Bank and Vinnicombe, 2004; Northouse, 2014). According to Kakabadse, Bank and Vinnicombe (2004), leadership is a process of influence that involves the leader and at least one other person, through this

process the leader influences the other(s) to achieve a shared common goal or objective. The difficulties reported by participants in this doctoral research, such as a lack of motivation and commitment are arguably in part attributable to poor leadership.

It is well recognised in the extent literature that leaders are capable of influencing, motivating and mobilising others to achieve shared goals (Bass, 1985; Mullins, 2007; Avolio, 2010; Northouse, 2014). It is clear that in the case of the NGHA these outcomes of leadership are not always being achieved. *Prima facie* a lack of leadership might be considered an issue that must be resolved by senior management and leadership within the NGHA. However, it is contended in some quarters of the literature that effective leadership can be fostered and employed at all levels of an organisation (Avolio, 2010), as such it is arguable that effective leadership should be fostered at all levels of the organisation.

Although it has been explicitly discussed throughout this sub-section it is clear that leadership is a theme that runs through the organisational factors identified. Given the scope and potential for leaders and senior managers to implement change within the NGHA, it is clear that if projects are to become more successful then senior management support is required - a view shared in the literature (Bass, 1985; Mullins, 2007; Avolio, 2010; Senior and Flemming, 2010; Northouse, 2014).

6.3.4 Individual factors impacting project success and failure

The findings identified that the participants within the research tended to be qualified to undergraduate level or higher, have considerable numbers of years of relevant experience, and the majority were between thirty one and forty years of age. Participants noted that the majority of people within the IT project teams in the NGHA were male, and that for most, Islamic values were of profound importance, impacting their behaviour and interactions with others in the workplace.

Within this doctoral research, individual factors are understood as those that pertain at the individual level. That is, those that follow from the characteristics and propensities of the individual employee within the NGHA.

The researcher's consideration of the findings revealed that there were four principle factors at the level of the individual level that can impact the success and failure of IT project implementation. These factors are drawn from participants discussions of individual factors and characteristics, and inferred from the preceding discussion of participants reports of pertinent organisational factors. The four factors are that 1) Individuals should have the relevant skills and capabilities 2) individuals should be motivated and committed to the project 3) that the wellbeing of individuals was of importance - stress was perceived as counterproductive to success 4) that individuals should have the relevant experience to undertake their work

The importance of the project team having the relevant skills and capabilities was discussed at length in the preceding section. Indeed, participants often

bemoaned a lack of adequate skills on the behalf of those involved in projects. While a lack of adequate skills was highlighted as contributing to the failure of projects, the presence of the necessary skills and capabilities was viewed as being a factor that contributed to success. These findings are consistent with the literature that has highlighted the necessity of having adequate human resources (Lock, 2007; Smith, 2008). It is also *prima facie* evident that different individuals will require different skills depending on their role within the project.

The second factor to emerge is the importance of proper motivation and commitment. A lack of motivation and commitment to the project was viewed as contributing to failure, while sufficient motivation and commitment was seen as important for the success of IT projects. Motivation is a complex and nebulous concept but is at base often understood as being related to an individual's impetus to act (Mullins, 2007). This appears to be the sense in which participants understood the term. It is well established that there is a relationship between motivation and performance (Hucyznski and Buchanan, 2007). The onus for generating motivation amongst staff was (as described above), placed on the project managers and senior leaders, and such findings are consistent with the relevant literature (Bass, 1985; Mullins, 2007; Avolio, 2010; Senior and Flemming, 2010; Northouse, 2014).

The third factor to emerge from the preceding discussion is the importance of employee wellbeing. As noted, when employees were found to be under too much work-related stress this had an impact on their performance and levels of absenteeism. Ensuring wellbeing is not just an organisational concern, some

commentators have argued that individuals also have a significant role to play (Kirk and Brown, 2003).

The final factor that emerged as important for contributing to the success and failure of IT project implementation was the experience of participants involved with the project teams. Experience was viewed as being essential for the management of IT projects, and was considered to be of considerably more importance than having the relevant formal qualifications. Formal qualifications, participants argued, did not guarantee that one would be able to successfully manage a project. This view is consistent with the literature, Kakabadse and Kakabadse (1999) have noted that educational attainment has little influence on the outcome of projects. Experience was also viewed as being important for generating trust and credibility between colleagues. When a project team member had sufficient experience in the field, they were viewed as experts by their colleagues and thus worthy of respect and trust.

6.3.5 Participant recommendations

A number of recommendations and solutions are evident from the preceding discussion (and formulated in detail in the following chapter). However, it is important to note that many participants were able to offer their own solutions to the problems observed in the management and implementation of projects in the NGHA.

Participants had general recommendations for improvements within the NGHA that may increase the likelihood of successful project implementation and

reduce the rate of failure. These were the provision of further training and development, and the potential of inter-organisational learning.

Further training and development seemed to be the key recommendation, as evidenced by the frequency with which it was reported by participants. The precise recommendations as to the focus of training and development activities that was suggested unsurprisingly differed amongst participants, likely based on their own experiences within the organisation. For example, some suggested the importance of communication, others financial management, and others training in project management. The different training needs can be categorised as pertaining to both people and task related areas, which has been shown to be a useful strategy for investing in improvements for the present situation (Analoui, 2002). The recommendations are consistent with the extent literature which note the importance of adequate skills and competencies (Lock, 2007; Smith, 2008) and that highlight the particular importance of project management training (Eve, 2007) in a targeted form (Al-Turki, 2011). It is important to note that the success of such initiatives is likely to depend on timely and appropriate support from senior management (Van Dijk, 2009; Al-Mudimigh et al., 2011).

A number of participants also noted that lessons might be learnt from other public sector organisations within Saudi Arabia. The literature on inter-organisational learning is vast and reports a number of successes (Hislop, 2009). This is one strategy that may be investigated by the NGHA in the future.

6.4 Construction and presentation of the conceptual model

As noted, the over-arching aim of this research is to critically explore the reasons why certain IT projects succeed and others fail in the NGHA. Based on the preceding discussion it is now possible to amalgamate the findings of this doctoral research to construct a model as the theoretical contribution of this work.

The goal of social science research is to contribute to the knowledge of a given discipline by generating new findings and theory (Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2007). Parson and Shils (1962) note that there are multiple levels of theory. At the lowest level, they note that a theoretical contribution may be made by generating ad hoc classificatory systems. An ad hoc classificatory system is used to organize and summarize empirical data. At the second level, Parson and Shils (1962) propose the generation of taxonomies. According to their conception, taxonomy provides a system of categories that have been generated to fit with empirical observations made during research. Once constructed, taxonomy can be used to describe the relationships between categories. At the third level, Parson and Shils (1962) highlight the use of a conceptual framework. A conceptual framework is understood as presenting a structure of explicit assumed propositions within which descriptive categories can be systematically placed. The propositions within the framework provide predictions and explanations for the empirical observations made during the research. At the fourth level is the generation of a theoretical model in which conceptual frameworks and taxonomies are combined through the systematic relating of descriptions, explanations and predictions. A theoretical model has the most predictive power.

Within this doctoral research, two conceptual frameworks are advanced, and the models generated are the theoretical contribution of this work. This choice is influenced by the type of the data generated, and the findings that have been determined (Parson and Shils, 1962).

6.5 Explication of the models, assumed propositions and assumptions

The models presented (see Figure 6.1 and Figure 6.2) depict the various factors at the external, organizational and individual levels that may lead to project success or failure. Within the first model (Figure 6.1), a more abstract approach is taken to labelling the identified factors. Within the second model, the importance of these factors within context are considered, and placed within the model. Thus, for example, within the first model the label “Cultural values” is placed within the category of external factors, but within the second model, the label “Islamic values” is used, as this is of relevance to the context under study. This demonstrates the heuristic value of the theoretical contribution of this work. While the first model (Figure 6.1) demonstrates the potential impact of the identified factors and their relationship to IT project outcomes in general, the second model (see Figure 6.2) demonstrates how the model can be adapted to take into account the situation within the context of the NGHA. There are two assumed propositions that underpin the frameworks. These are as follows:

The first assumed proposition is that the success or failure of a project is a result of its achieving sufficient results with respect to quality, time and cost. It is argued that this proposition is warranted because different participants within the research expressed different attitudes with respect to the importance of different criteria for failure and success.

The second assumed proposition is that project failure or success is not binary, but exists within a continuum. It is argued that this assumed proposition is warranted because different participants within the research proposed different conceptions of when a project may be considered to have failed or succeeded.

The following assumptions are also made:

The first assumption is that there will be a causal relationship between the external, organisational and individual factors listed. This is warranted based on a consideration of the findings in the preceding sections. For example, it was found that external factors such as the financial climate can have an impact on the cost of a project. In turn, the cost of a project can have an impact on other financial resources, and the allocation of other resources such as human resources (an organisational factor). The allocation of human resources (when insufficient) can lead to stress, and thus poor motivation - factors at the individual level.

The second assumption is that there is a relationship between factors within the organizational and individual levels. For example, at the organizational level, poor project planning can lead to inadequate human resources, and thus a stressful working environment.

The third assumption is that the factors listed may have either a direct or indirect impact on the identified factors for project success and failure, that is, on quality, time and cost. This assumption is warranted based on the findings of the research discussed above. For example, considering the external factor "Financial climate", it was found that this can impact the cost of projects due to

the need to purchase goods and services from suppliers and contractors in different countries - and the price will vary due to fluctuations in the international exchange rates. Further, it was noted that when costs of projects are impacted, this may impact the number of available human resources, thus potentially impacting both the time required to complete project and the quality. Further, considering the organisational factor "Working environment", it was found that when the work environment is stressful this can lead to absenteeism, impacting the time taken to complete the project, potentially impacting both cost and quality. Finally, considering the individual factor "Skills" it was found that the skills and capabilities of participants can impact the work that they produce - potentially impacting time (if work takes longer than expected), cost (where work needs to be reproduced, or employees are paid to produce work of a longer period than expected) and quality (where work is not completed to the requisite standard).

The models (Figure 6.1 and Figure 6.2) are comprised of three concentric squares with a fuller square placed within the middle of the model. The first three layers list the key factors that were determined to influence project success or failure. Accordingly, the top halves of these squares are labelled 'External, 'Organisational' and 'Individual'. The relevant factors are placed in the bottom halves of the corresponding squares. The central square lists the three criteria on which the success or failure of projects is judged by participants, that is, "Quality", "Time", and "Cost". The table below (see Table 6.1) lists the labels used to describe the factors, and an explanation of their meaning within the generic model.

Table 6.1: Explanation of the factors within the generic model

Category	Factor/Label	Explanation
External	Cultural values	This factor captures the importance of the values held by those within the organisation. A phenomena that is influenced by the wider societal and historical context of the organisation
External	External relationships	This factor captures the importance of the organisation's relationships with external contractors and suppliers
External	Financial climate	This factor depicts the importance of the wider financial climate - particularly the international exchange rate
Organisational	Gender bias	This factor denotes the propensity within the organisation towards gender bias.
Organisational	Human resources	This factor captures the importance of human resources for IT project implementation
Organisational	Project management	This factor denotes the important role played by project managers in the

		implementation of IT projects
Organisational	Planning	This factor captures the importance of the planning process for the implementation of IT projects
Organisational	Communication	This factor captures the importance of interdepartmental communication and cooperation
Organisational	Work environment	This factors captures the discussion of management expectations which (along with other factors) may lead to a positive or negative work environment
Organisational	Leadership	This factor denotes the important role played by senior managers and leaders in the implementation of IT projects
Individual	Skills	The factor captures the importance of the skills, capabilities and competencies of individuals with the project team
Individual	Motivation	This factor captures the importance of motivation and commitment of individuals within the project team

Individual	Wellbeing	This factor captures the importance of individuals' wellbeing, in particular, levels of workplace stress (or a lack thereof)
Individual	Experience	This factor denotes the importance of individuals having the required experience to undertake their roles

Source: Data Analysis

Within the following table (Table 6.2) the labels used to describe the factors and an explanation of their meaning within the specific model are described.

Table 6.2: Explanation of the factors within the specific model

Category	Factor/Label	Explanation
External	Islamic values	This factor captures the importance of the Islamic values held by those within the organisation. A phenomena that is influenced by the wider societal and historical context of the organisation
External	External relationships	This factor captures the importance of the NGHA's relationships with external contractors and suppliers
External	Financial climate	This factor depicts the importance of the wider financial climate - particularly the international exchange

		rate
Organisational	Gender bias	This factor denotes the propensity within the organisation to appoint male project leaders.
Organisational	Human resources	This factor captures the importance of human resources for IT project implementation
Organisational	Project management	This factor denotes the important role played by project managers in the implementation of IT projects
Organisational	Planning	This factor captures the importance of the planning process for the implementation of IT projects
Organisational	Communication	This factor captures the importance of interdepartmental communication and cooperation
Organisational	Workplace stress	This factors captures the discussion of management expectations which (along with other factors) may lead to workplace stress

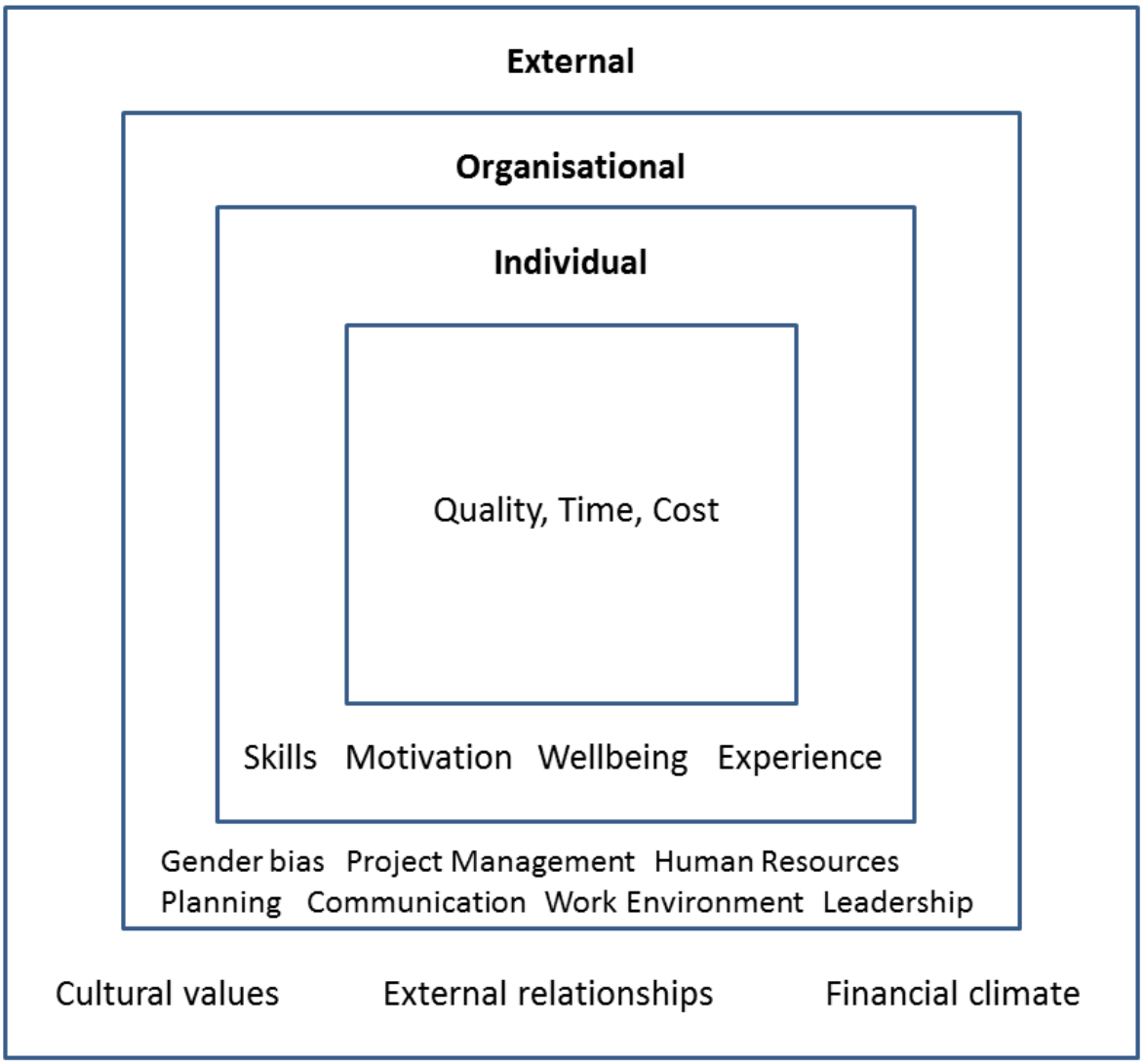
Organisational	Leadership	This factor denotes the important role played my senior managers and leaders in the implementation of IT projects
Individual	Skills	The factor captures the importance of the skills, capabilities and competencies of individuals with the project team
Individual	Motivation	This factor captures the importance of motivation and commitment of individuals within the project team
Individual	Wellbeing	This factor captures the importance of individuals' wellbeing, in particular, levels of workplace stress (or a lack thereof)
Individual	Experience	This factor denotes the importance of individuals having the required experience to undertake their roles

Source: Data Analysis

6.6 Presentation of the models

The following generic conceptual model of project success and failure that has been constructed is proffered as the theoretical contribution of this work:

Figure 6.1: Generic model of success and failure of IT project implementation



Source: Data analysis

It should be noted that for the sake of simplicity and ease of understanding the relationships described in the first and second assumptions (see 6.4) are not depicted within the model.

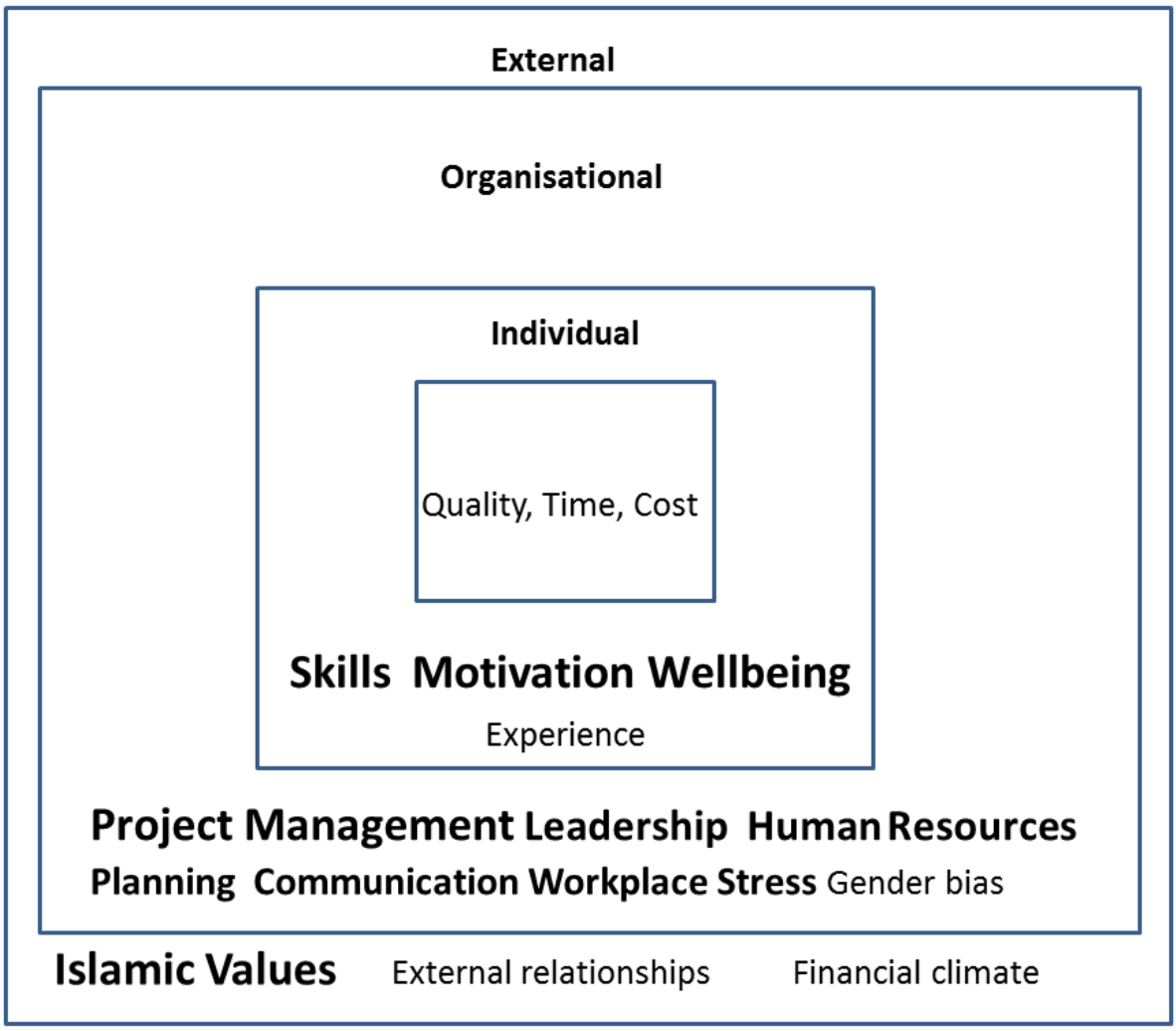
It is argued that this model has a number of implications for both theory and practice and these are considered within the following chapter.

To demonstrate the heuristic value of the model, the following figure (6.2) has been adapted from Figure 6.1 to explicate the importance of the factors within the NGHA. As with Figure 6.1, for the sake of simplicity and ease of understanding the inter-relationships between the factors are not described. However, to demonstrate the heuristic value of the model, various elements have been adapted to reflect the situation within the NGHA. While this could be done in numerous ways, the researcher has determined that it is most useful to change the sizes of the concentric squares that depict the categories to demonstrate their relative importance for project outcomes, and to change the size of the labels within each category to the same end. The researcher argues that this provides a simple method of presenting the importance of the identified factors, and the ease, and practical interpretation of research findings are of key concern in the sharing of results (Hussey and Hussey, 1997).

In adapting the model the researcher has had to make a determination as to the importance of the identified categories, and the individual factors within these categories. Such a task is not without difficulty. This doctoral research was undertaken to determine the factors that lead to the success and failure of IT projects within the NGHA, and it was never intended to rank or order these factors in terms of importance. Nonetheless, there is value in making the attempt as this highlights both the heuristic value of the conceptual model, and provides practical insights for the NGHA.

The determination of importance has been made using two sources of data. First, the summarised findings of the research (see Chapter 5) have been used as a basis for making determinations of importance. For example, where all participants have noted the importance of the performance of the *project manager* this has been interpreted as being of more importance than the *work environment* as this was highlighted by fewer participants. However, this method has clear shortcomings. First, it equates the frequency of the reports of the phenomena with the importance of those phenomena, and such a line of argument cannot be readily verified. The approach is also open to the challenge that the researcher has failed to take into account the issue of concept equivalency. Issues with concept equivalency occur when it assumed that one participant's conception of, for example, "importance" can be equated with accuracy of another participant's conception of the same concept. To buttress this method, the researcher has also chosen to make use of his own impressions gathered both during the research, and during his time within the organisation. As noted in Chapter 4, it could be argued that the researcher has gained significant stores of cognitive tacit knowledge. Such knowledge provides additional insights into the lived experience of working with thein organisation (for discussion, see Nonaka and Takeuchi, 1995). Further, as Stake (1995) notes, the qualitative researcher is the research instrument – thus his experience and interpretation of observed phenomenon within the context of research are also of value. With these caveats in place, the model (see Figure 6.2) is presented below:

Figure 6.2: Applied model of success and failure of IT project implementation in the NGHA



Source: Data analysis

The model (see Figure 6.2) demonstrates the researcher's interpretations of the varying importance of the categories for project success and failure. The size of the rectangles demonstrates the overall importance of each category, thus, external factors are judged to be least important, organisational factors to be most important, and individual factors to be of intermediate importance.

Within the category of external factors, the researcher has evaluated that Islamic values has greatest impact, and this is demonstrated by the size of the

text and the use of bold formatting. The two remaining factors within this category are judged to be of equal importance. Within the category of organisational factors, it was found that project managers were of most importance for success or failure, while senior leadership and the provision of adequate human resources are the next most prominent factors. The factors of planning, communication and workplace stress at the third level of importance, while gender bias was judged as the least important factor. As with the external factors, the importance of the factor is demonstrated by the font size and formatting of the labels. Within the individual category, it was found that skills, motivation and wellbeing were of most importance, and were deemed to be equally so. The importance of work experience was deemed to be less than the other factors. Again, these relationships are demarcated by the use of font size and text formatting.

Although the above model has limitations (described above). It is the researcher's contention that it demonstrates the heuristic value of the generic model, and may act as prescriptive guide for practitioners within the NGHA.

6.7 Conclusion

Within this chapter the findings of this doctoral research have been examined in relation to the extent literature. The factors that were identified as impacting both project success and failure have been explored. Based on the discussion presented, a conceptual model of the success and failure of IT project implementation has been constructed and presented as the theoretical contribution of this work.

The following chapter provides a summary conclusion of this work, and considers the implications of the key findings for key stakeholders, including management theorists and scholars, and practitioners within the NGHA and similar organisations.

The implications of this research for theory and practice are considered in the following chapter.

Chapter Seven

Summary and conclusion

7.1 Summary of the research

The exploratory study undertaken for this doctoral thesis was set in the National Guard Health Affairs (NGHA) in Saudi Arabia and has examined the success and failure of IT projects within this organisation. There were two principal reasons for undertaking the investigation into this topic within this organisation.

The first is the widely reported high failure rate of projects, and IT projects in general. Indeed, Alfaadel et al (2008) report a failure rate of 52% for IT projects within the Kingdom of Saudi Arabia. The second is that the NGHA has been lauded for its success in the implementation of IT solutions within the healthcare sector, and in 2010 was the recipient of an international award.

The review of the literature revealed that IT project failure is widespread and there are multiple pertinent factors that impact both success and failure (Al-Mashari and Al-Mudimigh, 2003; Asay, 2008; Lock, 2007; Alfaadel et al, 2008; Smith, 2008; Assaf et al, 2013).

This doctoral research project was undertaken with the aim of critically exploring the reasons why certain IT projects succeed and others fail in the NGHA, and had the following objectives:

- To critically review and evaluate the academic relevant literature on the factors identified as underlying IT project success and failure

- To identify the root causes of IT project failures and success in Saudi Arabia
- To identify issues specific to IT projects in Saudi Arabia
- To focus on the role of management in IT project planning and implementation.
- To assess the implications of the research findings for successful implementation of current and future IT projects in Saudi Arabia

The key research question which has been addressed is:

What factors contribute to success/failure of the IT projects in NGHA?

The rationale for undertaking this research within this context is three-fold. First, it is argued that the NGHA can be examined as paradigmatic case of IT project implementation success in a Middle Eastern context. Further, Xu and Meyer (2013) have argued that exploratory studies within developing countries can act as a "laboratory" for testing theory and assumptions that have emerged from work in developing countries - and can lead to refinement and development of theory. The second reason is that much of the literature has highlighted the role management and leadership for the success of project implementation (Lock, 2007; Smith, 2008; Senior and Flemming, 2010). Thus, this study can make a contribution to the literature by critically examining the role of leadership and management for project success and failure. Third, as noted, despite the fact that $800 million has been invested in IT infrastructure projects alone Saudi Arabia there is a paucity of literature examining IT project success or failure in this context (Alfaadel et al, 2008). Further, the success rate seems to be low,

indeed Alfaadel et al (2008) estimate that the failure rate of Saudi IT project failure is as high as 52.43%.

Thus, there is clearly a need for research into IT project failure in Saudi Arabia, and this study aims to identify key success factors for IT projects in the Saudi Arabian healthcare sector.

To achieve the aims of the research and answer the overarching research question and in-depth case study of the NGHA was undertaken. The research was qualitative in nature and rested on the assumptions of the interpretive philosophical approaches. Thus, the researcher was committed to a subjectivist epistemology, understanding social reality as being constructed by the individual interpretation of individual actors.

The case study involved 10 IT projects in the NGHA in Saudi Arabia. Following the investigation of documentary evidence, issues which arose were probed in greater depth by the researcher during semi-structured interviews with 14 project managers spread across different NGHA locations. The sample size of 14 interviews was determined by a strategy of saturation sampling. Once initial analysis of 12 interviews had been conducted a number of themes were identified. A further 2 interviews were then conducted and, as no new themes emerged, it was concluded that the point of data saturation had been reached.

Data from the case study and interviews were analysed using the technique of thematic analysis. Data from each phase of the study were integrated through triangulation. As a significantly large amount of data was generated, thematic

coding and the development of categories enabled the researcher to render the data into a schema which made it manageable for comprehension and analysis.

Two analytical lenses were used in analysing the data. The first entailed viewing the success and failure factors in a wider context taking into account socio-cultural factors. The second involved a critical evaluation of the roles of senior and middle management in project implementation by balancing their contributions against issues of time and context.

The completed work had a number of key findings. It was argued in the previous discussion that conception of success and failure adopted by participants differed. However, in all instances it was argued that success and failure were not seen as binary but was understood as combination of the quality, timeliness and cost of the IT projects in question.

Three categories of pertinent factors emerged from an investigation and examination of the key findings. These were categories of factors that impacted the quality, timeliness and cost of IT project implementation. The three categories of factors were *External factors* (Islamic values, External relationships, Financial climate), *Organisational factors* (Gender bias, Human resources, Project management, Planning, Communication, Work environment, Leadership), and *Individual factors* (Skills, Motivation, Wellbeing, Experience).

The implications of these findings for theory and practice are considered below. Following this the limitations of the study and opportunities for future research are discussed.

7.2 Theoretical contribution of the research

As noted, few studies in the extent literature have undertaken studies of IT projects within Saudia Arabia (Alfaadel, 2008). Indeed, the majority of scholarly research examining the success and failure of IT projects has been undertaken in developed countries (Gould, 2007) with most studies being undertaken within the private sector (Hussein et al, 2007). Indeed, few scholars have examined these issues within high income developing countries (Ngai et al, 2007).

Thus, the researcher argues that this doctoral research makes a small but significant contribution to the extent literature by presenting findings of the factors that may impact the success and failure of IT projects within Saudi Arabia.

The work extends the literature by arguing for a non-binary conception of the success and failure of the implementation of IT projects, and conceiving success and failure as the ability to implement IT projects with sufficient quality and within time and cost constraints. Three categories of factors were identified (*External*, *Organisational* and *Individual*) and 14 factors were identified overall. Thus, this doctoral research also contributes to the extent literature on the factors influencing the success and failure of IT projects (see for example, (Reel, 1999; Evans, et al. 2002; Beenker, 2004; Van Dijk, 2009; Al-Mudimigh et al, 2011).

The present work contributes to number domains in the fields related to organisation, projects and management. In the field of Project Management, most literature on project management is concerned with two major factors, namely; Time and Cost. The failure of the projects, specially within developing world are attributed to lack of these two major factors. Whilst the finding of the

present research validates these views, it goes further to complement the work of Altkinson (1999) 'Iron Triangle' which identifies 'quality' as a major factor that determines the success and failure of the projects. However, no empirical data is made available based on which the above conclusions are researched. The present research makes the conception of the 'Iron Triangle' outdated. Here as see both general and specific models (See Figure 6. And 6.1), there hierarchy of importance attached to these factors in context of individual, organisational and external levels.

Thus in organisational terms, the contribution made to theory is to suggest that project ought to be seen in context and the degree of success and failure differs according to the importance attached to the three major factors identified.

Within the field of 'Behaviour in organisation' the holistic nature of the influencing factors has become apparent. The issue of culture, faith and related values determine the behaviour of the individuals involved, even more than the interaction at work and individual characteristics of the role-holders.

The most important contribution to theory is made in the field of 'Leadership', in line with Senior and Flemming (2010) success and failure of the projects are mainly determined by the leadership. The present research clearly the factors and influences behind this subtle and complex process. Whilst the contribution made is largely to the 'situational leadership styles', it makes it apparent that leadership has to contend with and negotiate with factors and influences arising from the self, organisation and the external environment. (Kakabadse, et al., 2001; Analoui et al., 2011).

Finally, the model of success and failure factors for IT project implementation within the NGHA (see Figure 6.1) is proffered as the conceptual contribution of this doctoral research. This model can be used by other researchers as a framework for the further examination of IT project implementation.

7.3 Implications for practitioners

The present research has a number of implications for practitioners within the NGHA and within other organisations that manage the implementation of IT projects. The following recommendations are advanced for practitioners within the NGHA:

1. It was found within the research that participants differed with respect to their characterisations and conceptualisations of both *project success* and *project failure*. Given this divergence it is recommended that the criteria for success and failure are made explicit and widely communicated to project stakeholders prior to the commencement of work. It is contended that this will help to ensure that all stakeholders have the same expectations and are working towards the same goals, with their focus being placed on the same over-arching criteria.

2. The NGHA may consider increasing the diversity of its project managers. It has been suggested in the literature that female leaders are equally capable of providing effective management and leadership, however, they are underrepresented in the project management of IT projects in the NGHA. Further, some scholars have suggested that female leaders may bring benefits when compared to their male counterparts. It is recommended that the NGHA consider allocating more female project managers to IT projects.

3. A central concern amongst participants was a lack of adequate human resources for the completion of IT projects. It is recommended that an assiduous approach is taken to project planning so that sufficient numbers of human resources are made available to ensure that projects can be completed on time.

4. Similarly, it was noted that human resources often had a lack of knowledge and skills, and that this led to problems with completing projects to schedule. Participants also argued for the importance of more advanced training and development. Thus, it is argued that a more sophisticated human resource development programme is implemented at the NGHA.

5. This research has revealed the critical role of project managers in the successful (and failed) implementation of IT projects. Project managers were found to have a multifaceted role, being responsible for such tasks as providing leadership, ensuring motivation and commitment of staff, and interdepartmental communication. Thus, given this critical role, it is argued that more training is provided for project managers following the undertaking of a training needs analysis.

6. A related issue is the motivation of employees. A number of employees were reported as lacking sufficient motivation for the undertaking of their work and were reported to not have commitment to their work. Since project managers were widely regarded as being responsible for motivating staff, it is recommended that aspects of training are focussed on helping project managers resolve this issue.

7. Additionally, senior managers and project managers were seen as responsible for providing leadership in the organisation. In some instances it was reported that this leadership task needed to be undertaken more effectively. It is recommended that training is provided to increase the ability of those with leadership responsibilities to provide a vision for the organisation that resonates with all employees.

8. A related issue is that it is evident from the findings that the NGHA has an issue with a lack of departmental communication and cooperation. It is recommended that senior leaders need to take action to inspire and influence a greater perception of collectiveness amongst members of the organisation. The vision that employees have of the organisation needs to change so that they come to see themselves as members of the whole organisation, as opposed solely being members of their respective departments

9. Project planning was shown to impact success and failure. A lack of adequate project planning was sometimes highlighted, and it is contended that a more assiduous approach to project planning is required. One way in which this could be achieved, is through the involvement of project managers in the planning process. It was highlighted by participants that this may contribute to the creation of more realistic project plans.

10. The importance of expectations on the part of senior managers was highlighted. It was noted that unrealistic expectations on the part of senior management could lead to increased stress amongst staff, leading to absenteeism and impairing the implementation of IT projects. Thus, it is

recommended that senior management work towards ensuring they have more realistic expectations of the implementation of IT projects.

11. A central finding of this work is the importance of the wellbeing of members of the organisation. It was found that a range of issues contribute to workplace stress in the NGHA, including unrealistic expectations, budget constraints, and a lack of adequate human resources. The result of workplace stress was reported to be poor employee performance and absenteeism, ultimately contributing to the failure of projects. It is suggested that steps are taken to improve employee wellbeing and reduce stress. The researcher argues that the implementation of the recommendations above would contribute to this goal.

Based on the findings of this research it is recommended that practitioners who are tasked with implementing IT projects in other contexts should:

1. Ensure clarity as to the manner in which project success and failure are characterized and conceptualised, and ensure this understanding is shared amongst key actors.
2. Provide sufficient resources to properly implement IT projects.
3. Ensure that human resources have the necessary skills and capabilities to perform their tasks.
4. Ensure that those with leadership responsibilities are able (and do) provide a strong and realistic envision that resonates with employees.
5. Only appoint project managers who have the requisite skills and ability to undertake this vital role. Where this is not possible, it is recommended that training if project managers is undertaken to enhance their performance.

6. Develop and maintain the motivation of staff involved in project implementation. Additionally, project managers and team leaders should be aware that levels of motivation may change over time.
7. Develop and maintain strong inter-departmental communication and co-operation.
8. Ensure that gender bias does not influence the selection of project managers, and seek to enhance diversity of project manages with respect to gender.
9. Enhance the accuracy of project planning through the involvement of key inter- and extra-organisational actors at the early project planning stage.
10. Involve key actors in the planning of projects to ensure that senior management expectations are both clear and realistic.
11. Manage key organisational factors to make certain that employees do not suffer from unnecessary and avoidable work related stress.

7.4 Limitations

The study has a number of limitations.

First, the qualitative nature of the work, and the case study approach taken may impact the generalisability of the findings (Stake, 1995; Yin, 2008). That is given the importance of socio-cultural and wider organisational factors identified, it may be that these factors to not transfer to other contexts. Nonetheless, given the established paucity of studies on IT projects within Saudi Arabia (Alfaadel, 2008) the researcher argues that this work presents an interesting and valuable contribution to this nascent body of literature.

Second, the paucity of extent literature focussed on the context of Saudi Arabia limited the ability of the researcher to develop a theoretical frame for the research that may adequately reflect the context of the research. Thus, while the work aims to provide a view of IT project management within the context of

Middle East, the questions and conceptions on which it is based are largely influenced by Western research. Given the interplay of the extent literature, the design of interviews questions, and resulting interpretations (Saunders, Lewis and Thornhill, 2007) it is likely that this aim will not have been entirely successful. Nonetheless, as Bryman and Bell (2011) note, no research can be approached entirely without values and preconceptions.

Finally, the research examined the views of project managers and senior managers with respect to the factors impacting project success and failure. While this was achieved, there was no consultation with junior members of project teams. This is an unfortunate flaw in the research design, since it is well known that managers and leaders often have different conceptions of themselves than those held by their subordinates (Northouse, 2014). While the interpretive approach adopted enshrines the views and interpretations of participants, it may be that the manner in which subordinates perceive and interpret their social worlds at work with respect to these issue is somewhat different.

7.5 Opportunities for further research

There are a number of opportunities for further research into the success and failure of IT project implementation within Saudi Arabia.

First, it was noted in Chapter 2 that there is a paucity of studies examining IT project implementation within high income developing countries, and extent studies tend to be concerned with the private sector. Indeed, there is a particular lack of research into IT project implementation within Saudi Arabia,

and thus it is argued that any new research within this context will provide a contribution to the literature.

Second, it is evident that Islamic values were found to play a significant role in the behaviour and conduct of individuals within the NGHA. Further, research may attempt to examine the importance of religious values for the importance of success and failure in IT projects. The importance of Islamic values and work ethic is evidenced within the literature (see Chapter 6), and given the socio-cultural genesis of these factors there is ample scope for examining their importance within both similar and dissimilar organisations.

Third, the factors identified have been determined inductively from the experiences and perceptions of participants. Positivist researchers may wish to establish the validity of these factors deductively, and determine precise causal relationships between factors, and the three success and failure criteria of quality, time and cost.

Fourth, future researchers may wish to undertake the research with a wider range of organisational members, including more junior members of IT project teams. This may provide an opportunity to generate further and dissenting views, or to further substantiate the findings within this doctoral study.

Finally, future researchers may wish to examine and develop the model presented (see Figure 6.1) by identifying new factors and further substantiating the assumed propositions and assumptions which underpin the model. This may done in both similar and dissimilar contexts.

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Appendix 1. A

1. PERSONAL CHARACTERISTICS OF THE INTERVIEWS

1. Position in the organization:
2. Education Bachelor PG (Diploma)
    a. Masters PhD
3. Final qualification
4. Years of experience in the organization:
5. Qualifications (professional and academic) relevant to project management?
6. Gender Male Female
7. Years of involvement with implementation of IT projects

1. PROJECT RELATED QUESTIONS: SECCESS AND FAILURES

2. How would you define the projects you have been involved in their implementation to date; Small, Medium or large?
3. What are the criteria for success of the projects in your organization?
4. What were the Factors that in your opinion contributed to the successor the projects that you have been involved in?
5. In your opinion, how important is the role of the project manager in the success of the project?
6. How important is the PLANNING for the success of the projects?
7. Do you use process of BIDDING to select the suitable organization? If so, what is the most important factor influencing your decision? QUALITY or COST?
8. Do you outsource contractors for the project implementations (Partly or wholly)?
9. How many contracting organization you have been dealt with in the course of procuring and implementing the projects?; (Please give an example)
10. What training and development topics would you consider as essential for effective project implementations?
11. How important is the role of your department in managing inter-departmental or outside contributors for implementing projects?
12. To what extent your previous experience has been beneficial to the

success of the projects you managed?

13. Have you received any formal project management training/education in the past? Please explain
14. What are the factors that constrain the implementation of the project in your organization? Please give example:
15. In your opinion, what are main causes for project failures in your organization?
16. What factors have contributed (either individually or combined) to the failure of the projects that you are familiar with? Personal, organizational, external (for example contractors), could these failures be avoided?
17. In what ways, Islamic and cultural values such as Relationships; Trust; Commitment; Respect impact the implementation of the projects?
18. Are there similarities between project failures in your organizations and the other public sector organizations
19. Does your organization follow up the causes for failure for the future implementation of projects?
20. Would you consider lack of cooperation between departments as a reason for project failure? Please give an example you are familiar with.
21. Do you deal with related organizations outside Saudi Arabia, if so please give examples?
22. Would you like to be informed about the results of the study?

Yes No

23. Any other comments?

Total: 30 questions

Appendix 1. B

1. PERSONAL CHARACTERISTICS OF THE INTERVIEWS

1.1 Position in the organization:

Education (Please Tick) Bachelor PG (Diploma)

Masters PhD

1.2 Final qualification

1.3 Qualifications (professional and academic) relevant to project management?

1.4 Gender (Please Tick) Male Female

1.5Years of experience in the organization:

1.6 Years of involvement with implementation of IT projects

2. PROJECT RELATED QUESTIONS

How would you define the projects you have been involved in their implementation to date; Small, Medium or large

Do you use process of BIDDING to select the suitable organization? If so, what is the most important factor influencing your decision? QUALITY or COST?

Do you outsource contractors for the project implementations (Partly or wholly)?

How many contracting organization you have been dealt with in the course of procuring and implementing the projects; (Please give an example)

How important is the role of your department in managing inter-departmental or outside contributors for implementing projects

Do you deal with related organizations outside Saudi Arabia, if so please give examples?

What are the factors that constrain the implementation of the project in your organization? Please give example:

Individual., Organizational, External

In what ways, Islamic and cultural values such as Relationships; Trust; Commitment; Respect impact the implementation of the projects?

2.1 FACTORS/ CRITERIA FOR SUCCESS OR FAILURE OF IT THE PROJECTS

What are the criteria for success of the projects in your organization?

What were the Factors that in your opinion contributed to the successor the projects that you have been involved in?

In your opinion, how important is the role of the project manager in the success of the project?

How important is the PLANNING for the success of the projects?

To what extent your previous experience has been beneficial to the success of the projects you managed?

In your opinion, what are main causes for project failures in your organization?

What factors have contributed (either individually or combined) to the failure of the projects that you are familiar with? Personal, organizational, external (for example contractors)

Could these failures be avoided?

Are there similarities between project failures in your organizations and the other public sector organizations

Would you consider lack of cooperation between departments as a reason for project failure? Please give an example you are familiar with.

2.2 LESSIONS LEARNT

Does your organization follow up the causes for failure for the future implementation of projects?

What training and development topics would you consider as essential for effective project implementations?

Have you received any formal project management training/education in the past? Please explain

3. **ADDITIONAL COMMENTS.**

Any other comments that you may consider as relevant for this study?

Would you like to be informed about the results of the study? (optional)

Yes No

Appendix1.C

1. PERSONAL CHARACTERISTICS OF THE INTERVIEWS

1.1 Position in the organization:

1.2 Education Bachelor PG (Diploma) Masters PhD

1.3Final qualification

1.4Qualifications (professional and academic) relevant to project management?

1.5Gender Male Female

1.6Years of experience in the organization:

1.7Years of involvement with implementation of IT projects

3. FACTORS INFLUENCING PROJECTS IMPLIMENTATION

3.1 How would you define the projects you have been involved in their implementation to date; Small, Medium or large

2.2 Do you use process of BIDDING to select the suitable organization? If so, what is the most important factor influencing your decision? QUALITY or COST?

2.3 Do you outsource contractors for the project implementations (Partly or wholly)?

2.4 How many contracting organization you have been dealt with in the course of procuring and implementing the projects; (Please give an example)

2.5 *How important is the role of your department in managing inter-departmental or outside contributors for implementing projects*

2.6 Do you deal with related organizations outside Saudi Arabia, if so please give examples?

2.7 *What are the factors that constrain the implementation of the project in*

your organization? Please give example:

2.8 In what ways, Islamic and cultural values such as Relationships; Trust; Commitment; Respect impact the implementation of the projects?

4. FACTORS/ CRITERIA FOR SUCCESS OF THE PROJECTS

3.1 What are the criteria for success of the projects in your organization?

3.2 What were the Factors that in your opinion contributed to the successor the projects that you have been involved in?

3.3 In your opinion, how important is the role of the project manager in the success of the project?

3.4 How important is the PLANNING for the success of the projects?

3.6 To what extent your previous experience has been beneficial to the success of the projects you managed?

5. FACTORS / CAUSES FOR PROJECT FAILURE

4.1 *In your opinion, what are main causes for project failures in your organization?*

4.2 What factors have contributed (either individually or combined) to the failure of the projects that you are familiar with? Personal, organizational, external (for example contractors)

4.3 Could these failures be avoided?

4.5 Are there similarities between project failures in your organizations and the other public sector organizations

4.6 *Would you consider lack of cooperation between departments as a reason for project failure? Please give an example you are familiar with.*

6. LESSIONS LEARNT

6.1 Does your organization follow up the causes for failure for the future implementation of projects?

6.2 What training and development topics would you consider as essential for effective project implementations?

5.2 Have you received any formal project management training/education in the past? Please explain

6. ADDITIONAL COMMENTS.

6.1 Any other comments that you may consider as relevant for this study?

7. INTEREST IN FINDINGS

7.1 Would you like to be informed about the results of the study? Yes/No

Appendix 2.Table No. 5.2: Codification used for classifying the qualitative data

No. Interview	Code	Position of participants	Code	Branch/ Region	Code	Classification
1	1a	Project Manager	Pm	Madinah Region	Ma	1aPmMe
2	2b	Director	Dir	Riyadh Region	Ri	2bDirRi
3	3c	Project Manager	Pm	Jeddah Region	Je	3cPmJe
4	4d	Project Engineer	Peng	Riyadh Region	Ri	4dPengRi
5	5e	Director	Dir	Al Hassa Region	Al	5eDirAl
6	6f	Director	Dir	Dammam Region	Da	6fDirDa
7	7g	Project Engineer	Peng	Al Hassa Region	Al	7gpengAl
8	8h	Project Engineer	Peng	Jeddah Region	Je	8hPengJe
9	9i	Project Engineer	Peng	Madinah Region	Ma	9iPgMa
10	10j	Data Centre Manager	Dcm	Madinah Region	Ma	10jDcmMa
11	11k	Application Manager	Apm	Madinah Region	Ma	11kApmMa
12	12l	Data Centre Manager	Dcm	Riyadh Region	Ri	12lDcmRi
13	13m	Data Centre Manager	Dcm	Al Hassa Region	Al	13mDcmAl
14	14n	Application Manager	Apm	Dammam Region	Da	14nApmDa

Source: Data Analysis

Table 5.1: Number interviews per regional offices

No.	Region/Organisation	No. of Interviews	Codes
1	Madinah Region	4	1aPmMe 9iPgMa 10jDcmMa 11kApmMa
2	Riyadh Region	3	2bDirRi 4dPengRi 12lDcmRi
3	Dammam Region	2	6fDirDa 14nApmDa
4	Jeddah Region	2	3cPmJe 8hPengJe
5	Al Hassa Region	3	5eDirAl 7gpengAl 13mDcmAl
	TOTAL	14	