Innovation in Project Management

Factors influencing the success of innovation strategies

by

Madhu Fernando

Dissertation submitted to
Australian Graduate School of Entrepreneurship
in partial fulfilment of the requirements for the
Doctor of Business Administration

June 2006

Prof Neil E. Béchervaise (Supervisor)
DECLARATION

Originality
This dissertation is an original piece of work by the author. The thesis contains no significant amount of material that has been accepted as part of any course of study in any other university. To the best of the author’s knowledge, this thesis contains no material written or published by another person or organisation except where due reference has been made in the text and the reference section of the thesis. Any help that has been obtained from people other than the author in the preparation of the dissertation has been accurately described and fully acknowledged within the body of the work.

Signed........................................................................

Dated........................................................................
ABSTRACT

Many factors influence project management success. Recent research, however, suggests that the majority of projects still fail. In an increasingly competitive environment, one explanation for this continued failure is an inability to adapt, change or innovate. Innovation, it is argued, is the success factor that helps organisations to renew and grow in turbulent times. This thesis provides evidence suggesting that innovation is one of the critical factors in successful project management.

This research was conducted in a highly bureaucratic and process-oriented multinational information technology and telecommunications company, fictionally named Teleca, where innovation had been encouraged in several areas excluding the project section - where this research was conducted. The company's concern with appropriate implementation of innovation in projects motivated this study.

An exploratory case study involving in-depth interviewing with project managers and their clients was supported by a content review of Teleca's organisational publications to establish its preparedness for the implementation of innovation strategies in the project management section. Findings from the initial data analysis were then fed back to the original informants to ensure high levels of content and construct validity while increasing the potential for buy-in to the recommendations for policy which focused the practical intentions of the study.

The findings from this research study strongly support the view that innovation is a key factor influencing project success. In some cases, with some project types and in specific phases of some projects, innovation has been found to be more critical than in others. The study reveals that project managers are willing to innovate where Teleca promotes a supportive environment for such innovation. Exploratory data requiring further research suggests, in conclusion, that innovative individuals operating within an organisation encouraging innovation, offer substantial potential for the successful implementation of innovation strategies in project management.
Chapter 4 Data Analysis

4.1 The background 91
4.2 The findings 92
4.2.1 Document Analysis 92
4.2.2 Career paths in Project Management 93
4.3 Analysis of interview data 95
4.3.1 Factors influencing project success 96
4.3.2 Factors motivating project managers 99
4.3.2.1 Variety 100
4.3.2.2 Challenges in project 100
4.3.2.3 Self satisfaction 101
4.3.2.4 Reduced bureaucracy 101
4.3.2.5 Teamwork 101
4.3.2.6 Customer/Client contact 102
4.3.2.7 Change 102
4.3.2.8 New experiences and learning 103
4.3.2.9 Successful completion 103
4.3.2.10 Fun 104
4.3.2.11 Reward and recognition 104
4.3.2.12 Innovation and change 104
4.3.3 Project Success Factors 106
4.3.3.1 Innovation as a project success factor 112
4.3.3.2 Traditional ways of thinking 113
4.3.4 Organisational actors influencing innovation strategies
4.3.4.1 Training structure 119
4.3.4.1.1 Training for Project Managers 120
4.3.4.1.2 Training for project team members 121
4.3.4.2 Process orientation 122
4.3.4.3 Punishment for failure 123
4.3.4.4 Freedom to take initiatives 124
4.3.4.5 Flexibility of the standard methods 125
4.3.4.6 Organisational encouragement for innovation 126
4.3.4.7 Authority to make decisions 127
4.3.4.8 Rewards and recognition 128
4.3.5 Individual Factors influencing innovation strategies
4.3.5.1 Ability to make decisions 129
4.3.2 Being innovative

4.3.3 Individual preference, motivation and passion for innovation

4.3.6 Factors influencing innovation strategies

4.4 Successful innovative frameworks

4.5 Chapter conclusion

Chapter 5 Conclusions and Implications

5.1 Summary and conclusions
5.1.1 Understanding project success
5.1.2 Factors influencing project strategies
5.1.3 Innovation as a project success factor
5.1.4 Traditional factors affecting project success
5.1.4.1 Organisational factors influencing innovation
5.1.4.2 Individual factors affecting innovation
5.2 An innovative framework for project success
5.3 Recommendations for further research
5.3.1 Confirming boundaries
5.3.2 Supporting innovation
5.3.3 Confirming innovative success strategies
5.4 Towards an innovative framework

Bibliography

Appendices
A Participant consent form
B Indicative case study questions
C Content Analysis - categorisation
D Data summary
### LIST OF TABLES

The numbering system used in this thesis for both Tables and Figures includes the chapter number followed by the sequential number of the Table or Figure in that chapter. Hence a figure numbered 4.3 denotes the third figure in the 4th chapter.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Table/Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Success factors (Kerzner, 2003:123)</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>The Sample</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Summary of Project Success Factors</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Traditionally defined project success criteria</td>
<td>114</td>
<td></td>
</tr>
</tbody>
</table>

### LIST OF FIGURES

The numbering system used in this thesis for both Tables and Figures includes the chapter number followed by the sequential number of the Table or Figure in that chapter. Hence a figure numbered 4.3 denotes the third figure in the 4th chapter.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Thesis structure</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Joint function between innovative-minded individuals and organisational factors (Brazeal, 1993)</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>The organisational structure of Teleca</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Diversity of the Project Management Sample</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Research Design: Factors influencing innovation strategies</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Teleca Innovation Process (Source: Teleca Intranet)</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Factors influencing successful implementation of innovation strategies</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Innovative Framework for understanding factors influencing innovation strategies in project success</td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Suggested Framework for Implementing Innovation Strategies in Projects</td>
<td>151</td>
<td></td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

When I began my research I had no idea of all the challenges I was going to face. I used to believe that changing jobs, frequent overseas travel, and starting a new business demanded my time while I was doing my DBA thesis. Then I gave birth to my son Neathan. He has changed all the priorities in life. I have managed to complete my thesis because of the continuous support I have received from many people around me.

My gratitude extends to Andrew Tompkins for the tremendous support he has provided in the final editing stages of this thesis.

Most of all, I would like to thank my supervisor Dr. Neil Béchervaise for all his support and guidance throughout the entire research project. When I really needed support he was always there for me, making all the difference.

A very special thank to my family and friends, for being there for me all these years, when research was taking over most of my time and energy. Especially, my mother and sister, and my loving husband Arosha for their understanding and support.

And of course, my little son Neathan for showing me what family is all about, and giving me the courage to do things that seems impossible, with just one smile.

with just one smile
Anonymity

Research reporting tends to determine what are essentially and uniquely human activities involving real people doing real work. Recognising this fact, the dissertation provides its respondents and companies with fictionalised identities. As such, all people referred to or quoted in this thesis have been fictionalised to maintain their anonymity. Any resemblance to persons or organisations is coincidental and the reader should draw no conclusions as to their true identity.

Gender specific language

Gender specific language within this dissertation has been standardised to non-gender specific language where possible. In the case where this has not been possible for the purpose of style or preservation of meaning, ‘he’ and ‘him’ have been used to indicate both females and males. In the case where an oversight has occurred and the term ‘she’ or ‘her’ is used, this will also be referring to both males and females unless the context of the language use specifically indicates otherwise.

Language usage conventions

The spelling and grammar used within this dissertation is Australian English. For consistency, all spelling has been standardised to this format, excluding citations, titles of works and reference list entries. The respondents quoted directly in this dissertation used spoken English as opposed to written English to explain their thoughts and ideas regarding the questions asked. The spoken language has been modified in this dissertation to transcribe it to written form, including a process of removing any content that does not directly add to the meaning of the message (for example, ‘ums’, pauses, conversational grammar). In all cases where this has occurred, the respondent has been given the opportunity to review and confirm the meaning of the quotation represented in the written form.
Chapter 1: Innovation in Project Management

We live in an environment where market competition is continuously increasing. Success in this environment is commonly agreed to be about being first and being best. Innovation helps organisations to achieve this measure of success by doing things differently. Innovation creates new products and services, new jobs, improved organisational culture and better ways of working. Fostering innovation in an organisation, however, demands considerable commitment and dedication and, although many factors influence innovation, few of these appear to have been considered in mainstream project management research.

1.1 Background to the study

Teleca is a large and well-established multinational organisation which leads the market with some of the latest information and telecommunication technologies. In many large organizations like Teleca, projects are managed according to standardised procedures. In the established and largely bureaucratised context of Teleca, the question need never arise as to whether innovation is necessary to make projects successful in an environment, because everything is run according to set standards. Furthermore, it need never be asked whether the organisational culture could accept innovation, even if the opportunity was offered, because rejection would not be a choice.

Teleca has a presence in more than one hundred countries around the world. Unlike many smaller IT/Telecommunication companies, however, Teleca has been particularly affected by
the global industry downturn and is looking for better ways of doing things – both for survival and then for growth. To achieve its survival and growth objectives, Teleca is now requiring increased levels of innovation because, it now agrees, it will not survive in the long run if it continues to follow the same processes it has followed in the past.

In some areas of Teleca, innovation has been identified as a priority. In other areas, previously established business strategies are maintained. More importantly, innovation has not been widely accepted as an ongoing success factor, nor has not been encouraged across the organisation. The unit studied in this research, the Teleca project management office, is no different to many other Teleca business units. It does appear, however, to have reacted differently towards recent opportunities for innovation.

As a project manager at Teleca, I had a personal interest in developing project management in the organisation. By the time I started my doctoral studies, I had already completed some project management research through involvement with the Project Management Institute (PMI). From this research, Teleca expected to derive some strategies with which to improve project management practices in the organisation. The factors influencing project success attracted their attention. When the topic was re-designed to investigate innovation in projects as it adds something new to the understanding of project management, however, lots of convincing was required to get Teleca’s support.

Project management is a specialised field of management. It involves managing both tangible and intangible aspects. Mostly, project managers tend to come from technical backgrounds, though perhaps less frequently in change
management projects. In the organisational hierarchy, project managers are identifiable at a number of different levels. They can be responsible for setting up the whole organisation or for managing a small change project. However, the skills required from project managers in managing projects at every level are generally claimed to be similar to each other. Within the organisational culture of Teleca, they are largely seen to apply the same rules and to use the same project management methodology, though perhaps to varying extents.

The success of a project was traditionally defined as meeting customer expectations, quality, budget and time lines. Within this framework, projects were considered to be comparatively predictable and controllable. Project managers were only responsible for creating project plans and managing projects technically, according to the plan. External factors influencing the project were considered relatively unimportant when compared to the projects managed, even in the current turbulent business environment.

Innovation, or freedom to innovate, is required for any organisation to be flexible and adaptive when and as required. Nevertheless, organizations do not innovate, people do. Only people have the ability to make decisions. Using entrepreneurial mindsets, people have the ability to make a difference, to break the ground rules, create new values and new wealth. They have the ability to do things in ways which have never been done before. The power of people’s ability to innovate, make quick and successful decisions, and add new value to the organization is what makes one organization look different from another. In an increasingly people-focused environment, project management is less about adherence to pre-stipulated plans and more about innovation. In a heavily process-oriented context, however, one of the main challenges
for effective project management is creating a culture of innovation.

Increasingly, it appears that effective Project Managers do not control their projects according to a fixed plan. Fixed plans, in fact, are increasingly inappropriate to successful project completion. Projects require exploration rather than inflexibility to respond to change. Project managers are increasingly expected to use their innovative ability to implement new ways of making things happen during unexpected and sometimes uncontrollable periods of change. Innovative exploration of possibilities is, therefore, required throughout a project. Identifying the factors influencing innovation strategies in projects is expected to lead to more responsive decision-making and to the identification and development of new knowledge leading to increased rates of project success in a rapidly changing world.

To identify and investigate these success factors, increased understanding of what project success means, how the factors influence success, and the role of innovation as a project success factor have become essential to maintaining market edge.

There are many factors influencing the success of projects in the Teleca environment. Literature reviewed during this research shows many studies on the factors influencing innovation. However, there appear to be few substantial studies on the role played by innovation in project success or of factors influencing the innovation strategies of project managers. There is even less information available on investigation of the factors influencing innovation strategies in an organization driven by its existing project management routines. This research project was designed to narrow that
gap with a detailed exploration of the innovation strategies currently applied and projected for Teleca.

1.2 Research questions

The purpose of this research was to identify factors influencing the innovation strategies of project managers as they optimised successful project outcomes. By investigating critical factors influencing the innovation strategies of project managers, this study aimed to introduce new levels of understanding of the factors that influence the implementation of successful innovation strategies in Project management. To achieve this goal, two interrelated research questions were investigated:

1. Is innovation an element in influencing the success of projects and project managers?

2. What are the factors influencing the successful implementation of innovation strategies of project managers?

1.3 Specific aims of the study

As previously suggested, this study aimed to identify and explore critical factors influencing the success or failure of projects, and to investigate the role that innovation plays as a project success factor, when innovation is encouraged and supported by the organisation. In achieving this over-arching goal, it was anticipated that organisational and individual factors influencing innovation strategies would lead to an understanding of the actions needed to support innovation in the organisation.

This research study seeks to increase understanding of what project success means to project organisations at Teleca and
to understand the factors influencing this success. It is expected that innovation strategies of project managers are key contributors to the success of projects and project managers in an organisation.

As it was initiated, the study aimed to:

- Identify the factors influencing success of projects
- Investigate the role innovation plays in projects that leads to project success
- Investigate the factors influencing implementation of innovation strategies by project managers.
- Propose environmental changes that would provide greater support for the development and application of innovation strategies in project management.

1.4 Methodology

This research applied a qualitative, exploratory, single Case Study design to identify the factors influencing the success of projects; the role in innovation in influencing project success; and how these factors influenced the innovation strategies of project managers.

Exploratory research takes a qualitative form seeking to identify the variables involved and the potential relationships between them. Exploratory research does not presume to construct experiments, which establish a direct cause and effect between variables. In Social Science research, particularly, such links are very hard to establish. Instead, exploratory research searches for causal tendencies or generative mechanisms that suggest causal relationships within limited contexts.
The nature of the findings from exploratory research may suggest firm conclusions but these cannot be generalised without much further research to substantiate from limited contexts, relatively small sample sizes and, frequently, constrained access to informed data sources.

The research structure involved an interview-based study in 3 stages:

- Interviews with Project Managers, Customers, and Line Managers to identify the factors influencing the success of projects
- Content analysis of organisational publications substantiating the factors identified
- Proposal of a strategic framework explaining the environmental changes and corrective actions seeking to provide greater support for implementing successful innovation strategies in project management.

Project managers and the people who work with the project group in the selected organisation, Teleca, were used as the single case study population for this study. Key informant interview techniques were used, as the study required an in-depth analysis of qualitative data to draw the conclusions. Key-informants were carefully selected to cover a range of experience and approach, and to include diverse cultural and age groups. Project Managers who were selected as the key informants had widely different backgrounds. Line Managers were mainly middle-aged males with a wide range of experience. They had exposure to general management and sound knowledge and experience of project management or similar work.
The line managers were mainly used to cross-check the answers given by the sample group studied in the research - the project managers. This helped during the research to reduce any tendency toward biased responses and contrived stories, as each was aware that they would be interviewed separately. Customers, on the other hand, had limited exposure to the culture of the Teleca Project Management approach. As a result, they were helpful in identifying things from a different perspective, and for confirming details provided by the internal Teleca staff as they reported the success of projects and the way they work.

1.5 Significance of the study

Over extended periods, and often across multiple takeovers, restructures and mergers, many large organisations, like Teleca, have reached a point where they have processes established to control almost everything they do. Projects tend to be heavily process-driven in these organisations. Although established processes are required in every organisation, flexibility remains vital for strategic responsiveness. Only a balanced approach, it seems, can contribute to project success. This study seeks to identify factors affecting this balance and present a proposal for its implementation for delivering successful projects.

There are many organisational publications available on processes that assist in the success of projects at a general level. However, there is little to suggest how an innovative project organisation might be built to encourage innovation in projects. To build that organisation, it is important to understand the role innovation plays in project success, and then to establish the factors influencing innovation strategies...
applied by project managers who are consistently completing projects successfully.

The ultimate success of projects, it is argued, is dependent on creating an innovative culture which responds quickly to customer needs and has the ability to imagine potential futures. This study provides guidelines for organisations to make those goals possible.

The findings of this research have the potential to make a significant impact on many parties. In terms of the scope of this study, these include project managers, project based organisations, innovators who work with project managers, and entrepreneurs who work with project-oriented organisations.

The findings from this research offer support for project managers to understand the importance of thinking outside the box, of being different to achieve better results. As management become more aware of the role played by innovation at the project management level, these findings can be used to encourage an organisational environment which, in turn, encourages them to innovate. It offers support for innovative project managers and project teams, as their efforts are increasingly recognised and rewarded. It also offers assistance to organisations seeking to implement innovative ways of working which will provide the flexibility an organisation requires for its future growth.

Project based organisations are expected to benefit from the findings of this study as they introduce and encourage the activities required to foster innovation in project environments. Guidelines for the design of effective training for project managers to unleash their creative potential are presented. Supportive guidelines are provided for entrepreneurs who work...
with project oriented organisations to build new mission, goal and value statements based on the requirements of an innovative culture.

In extending the boundaries of understanding of innovation in project management, the findings of this study identify and support effective training and development strategies for project managers seeking to increase their rates of successful decision-making. In extending these same boundaries, the findings of the study suggest directions for future research and for the theoretical consolidation of many currently acknowledged rule of thumb factors affecting the potential for sustained project success.
Chapter 1
Introduction

Chapter One presents the background to the study as a context within which to understand the significance of the study and its findings. It states the research question, provides details of the research objectives, a description of the study site and methodology applied. The scope of the findings and a summary of their significance at both the study site and within the wider field of understanding innovation in project management is then presented.

Chapter 2
Literature Review

The chapter discusses the concept of innovation and examines its role in the often statically interpreted process of project management. This discussion provides background for the research in detail. The chapter establishes current understanding of factors influential in determining project management success and identifies current requirements for innovation in the PM environment. As a consequence of this literature review, the chapter identifies the general field and parameters defining the research question and establishes the broad context within which it needs to be studied. In establishing the current levels of knowledge and research preoccupations, the chapter examines the extent of acceptance of this prior research, clarifies the need for further research in the specific area of the refined research question, and identifies the research questions in the context of the existing literature.

Chapter 3
Methodology / Data Collection

Initially, this research methodology chapter provides a detailed description of the sample group, its selection and factors identified as constraining or limiting the findings. The data collection process and difficulties faced during the process are described and the analytical techniques are described and discussed.

Chapter 4
Data Analysis

Data collected through the literature search and interviews is analysed in chapter 4 where the findings are presented in detail. Based on these analyses, it provides recommendations to build an innovative project organisational framework to support innovation in projects.

Chapter 5
Summary and Conclusions

The final chapter of the thesis is presented in three parts: Part 1 identifies conclusions from the study and provides a comparison of the actual outcomes with the original expectations (see chapter 3 - research questions, aims and objectives) of the research before discussing the contribution of the study to project management knowledge for the industry. Part 2 Discusses the recommended innovative framework further and provides a detailed framework to support innovation. Part 3 discusses the generalisability of the study findings and identifies opportunities for further research.
1.6 Chapter conclusion

This chapter has provided a background for the study reported in the following chapters, identified the research questions and specific research objectives, provided a brief introduction to the methodology used and outlined the scope of the findings and their implications for practice and for further research. The structure of the thesis is outlined in the following figure (see Figure 1.1). Chapter two presents a review of related literature which details the use of innovation strategies within the current project management environment and identifies the need for increased understanding of the relation between successful project management and innovative approaches to project management. In doing so, it establishes the context for the study, its timeliness within that context and the research questions which form the focus for the study.
Chapter 2 Literature Review

Research literature in the field of project management suggests that there are many factors influencing project success. Innovation appears to be generally agreed to be one of the key contributors to this success. Interestingly, therefore, innovation as a factor influencing project success or successful decision making in projects has still not been widely discussed in project management literature.

This exploratory case study research on understanding innovation as a critical factor influencing project success aims to address that identified gap in the literature. This chapter details the relevant literature found in the project management and other related management disciplines and provides a summary of findings from the organisational publications.

This chapter takes the following structure:

2.1 Project and Project Management - Definition
2.2 Defining Innovation
2.3 Project Success Factors
2.4 Innovation as a Project Success Factor
2.5 Factors influencing Innovation strategies
2.6 Content Analysis of Organisational Literature
2.7 Chapter Conclusion

2.1 Projects and project management – Issues of definition

Project management and project success factors have been identified and defined in a range of different ways in the past few decades. Although a clear understanding of project
management would appear to be crucial to understanding the factors influencing project success, there appears yet be little agreement.

Traditionally, as has been established, project management was seen as a body of work built around a specific time line, budget, and a fixed plan. Wysocki, Beck, & Crane (2000) define the project as:

A sequence of unique, complex, and connected activities having one goal or purpose and that must be completed by a specific time, within budget and according to specification. (Wysocki, Beck, & Crane, 2000: 65)

At the same time, however, the Project Management Institute offered that:

A project is a temporary endeavour undertaken to create a unique product or service. Temporary means that every project has a definite beginning and a definite end. Unique means that the product or service is different in some distinguishing way from all similar products or services. Project Management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project (PMI, 2000: 6).

According to this definition, project management is creating something new and unique. Because it has never been done before, every project necessarily involves innovation (see 2.2).

There is broad agreement that Project Management involves not only managing a technical process, but also managing
people. In that sense, there does not appear to be much difference between project management and general management. General management activities also include defining what the business unit will do, planning for the number and type of staff, organising the staff, monitoring their performance of the tasks assigned to them.

Project Management is a method and set of techniques based on the accepted principles of management used for planning, estimating, and controlling work activities to reach a desired end result on time within budget and according to supervision. (Wysocki, Beck, & Crane, 2000: 79)

Generalising between views in a similar manner, Ruskin and Estes (1994) had already suggested that Skilful Project Management involves knowing what is to be done, who will do it and when, and how it should be done.

Many companies have project organisations established to achieve the best from their project management. A Project organization is established for a limited period of time, generally to accomplish one specific purpose - to bring a new idea or project from its conceptual stage through development and cause its full implementation (Bandt, Larsen, & Ruppert, 1977). It is easier to understand the success or failure of projects through innovation in such an organisation, and also to encourage innovation, as all projects are managed within the same organisational environment.

At Teleca (See 1.1), Project Managers belonged to one project organisation and their successes were measured according to a single set of criteria. They were given the same training, and they received the same rewards and recognition. Teleca’s
approach at the time of this study suggests a largely traditional approach to Project Management.

Encapsulating the range of prevalent definitions, Pinto and Kharbanda (1995) see Project Management as something bigger than just monitoring the budget, timeline and project plan. Instead, it is a dynamic process of leading, coordinating, planning and controlling a diverse and complex set of processes and people in the pursuit of achieving project objectives. Within the compass of this perception, the potential for innovation suggested by Drucker (1985) and supported by Lin (2001) seems to merit further research attention.

2.2 Defining innovation

In order to understand the factors influencing innovation and innovation as a factor influencing the success of projects, it is important to understand what innovation means in the business environment.

Innovation refers to the introduction of a new product, process, technology, system, technique, resource, or capability to the firm or its markets. (Covin & Miles, 1999:47)

Expanding this view to include incremental development, Butlin & Carnegie (2001) suggest that,

Innovation may be focused on either new or improved products (such as software and biotechnology products), or processes (for example, new iron smelting
technologies and information and communication technologies) and organizational development (for example new forms of employment). (Butlin & Carnegie, 2001: 107)

Moving beyond the product orientation, Douglas (2001) observes that,

Innovation is typically manifested in the creation of a new business model that changes the way in industry does business. (Douglas, 2001: 84)

Drucker’s (1985:31-32) seven sources of innovation help to understand what innovation might include:

- The unexpected – the unexpected success, failure, outside even.
- The incongruity- between reality as it actually is and reality as it assumed to be or as it ‘ought to be’
- Innovation based on process need
- Changes in industry structure or market structure that catch everyone unawares
- Demographics
- Changes in perception, mood and meaning,
- New knowledge, both scientific and non-scientific

(Drucker, 1985:31-32)

Emphasizing the importance of pre-requisites for innovation, Lin (2001) reiterates what many other authors have identified as the traditional foundations for innovation. According to Lin (2001) we have traditionally recognised innovation as a cyclical process,
During the innovation process, an enquiring, curious and imaginative mind gathers new information, creates new knowledge and develops new ideas. These ideas in turn stimulate the need for more information, thereby creating more knowledge, developing more perspectives, generating more new ideas, and thus the cycle continues on. These elements are the traditional foundation of innovation. (Lin, 2001:10)

On the basis of his research, Lin (2001) identifies four ‘new’ foundations for innovation. He suggests that these may be articulated as: new information, new knowledge networks, new mental perspectives and new futures mindset.

Lin (2001) further suggests that, we all possess a great deal of unused mental potential, and need to improve our capacity for foresight and innovation by constantly exercising our minds in future studies and imagination. Applying the metaphor of mind as muscle, Lin suggests that if we do not practice these new foundations, then the areas in our minds that we use to develop the attributes will weaken, and our capacity for innovation will diminish.

Presaging the view of Butlin & Carnegie (2001) that innovation may be incremental, Hargadon & Sutton (2000) include consideration of an innovative context to observe that the best innovators aren't lone geniuses. They're people who can take an idea that's obvious in one context and apply it in not-so-obvious ways to a different context.

After studying businesses that innovate constantly for at least five years, Hargadon & Sutton (2000) suggest that the best innovators systematically use old ideas as the raw materials for one new idea after another. Furthermore, the companies they
studied have found out how to make that leap again and again. They call it a *knowledge brokering cycle*, which involves the following steps:

1. Capturing good ideas. Knowledge brokers scavenge constantly for promising ideas, sometimes in the unlikeliest places. They see old ideas as their primary raw material.
2. Keeping ideas alive. To remain useful, ideas must be passed around and toyed with. Effective brokers also keep ideas alive by spreading information on who knows what within the organization.
3. Imagining new uses for old ideas. This is where the innovations arise, where old ideas that have been captured and remembered are plugged into new contexts.
4. Putting promising concepts to the test. Testing shows whether an innovation has commercial potential. It also teaches brokers valuable lessons, even when an idea is a complete flop. (Hargadon & Sutton, 2000: 157)

An encompassing definition of innovation appears unlikely in the broadest terms of business practice. As the priorities of the business context evolve, the definition of innovation, itself, evolves. As the need for definition shifts from product to process orientation, the meaning of innovation shifts, the applicability of an appropriate definition from one context does not travel well towards another. Perhaps most importantly, the words used to define innovation become subject to the need for definition themselves. In the context of project management, this may result in profound misunderstanding.

Two commonly misunderstood terms related to innovation are *creativity* and *entrepreneurship*. In the context of this study, it is
argued, creativity and entrepreneurship are *not innovation*. The words complement each other, however, and it is appropriate that they should always be closely associated with innovation.

### 2.2.1 Creativity and innovation

Arnold (2000:6) suggests that creativity exists in many forms in today’s business world. In the development of corporations, the merging of business structures and in generating profit growth, examples are everywhere. Yet seldom do the people who are routinely engaging in creative thinking for their companies realise how important a creative balanced lifestyle is for management performance, relaxation and personal growth.

According to Waite (2000), creativity will be an essential component of career planning in the third millennium.

> Engaging your creativity will mean thinking beyond the norm, stretching your imagination and your own personal boundaries and changing your self-perception and your perception of how others see you. (Waite, 2000: 20)

As Kuratko & Welsh (1994) suggest, everyone is creative to some degree. Some individuals, however, appear to have a greater aptitude for creativity than others. It is variously argued that some people have been raised and educated in environments that encourage them to think creatively. Béchervaise (2005) has argued that this may be particularly difficult for people in leadership positions when creative energy has not been positively reinforced. In an essentially managerial context, any shift towards innovative activity requires first, learning how to implement the creative process.
In Project Management studies, creativity and innovation are commonly linked with problem solving. As Domb (2000) explains, in the past, project managers have consciously avoided all kinds of “creativity” in projects, in the belief that creative problem solutions increase the risk of project failure because “creativity” is necessarily a wild, uncontrolled, undisciplined generation of new ideas that are of limited (or no!) practicality. If this were necessarily the case then Domb would be right to reject its consideration at the project management level.

If creativity was chaotic, it would represent a danger to successful completion of the project. Domb (2000) acknowledges, however, that creativity can be managed. It can be focused. And it can be the reason that the project succeeds.

2.2.2 Entrepreneurship and innovation

For the purposes of this study, it is crucial to distinguish between innovation and entrepreneurship. Though the terms are interrelated, they are often confused by researchers because they are generally closely associated in practice and, as Drucker (1998) argues, entrepreneurship requires innovation.

Differentiating the links between innovation and entrepreneurship is important for this study because, on the basis of the literature informing the subject, it is argued that entrepreneurship is a pre-requisite for innovation.

To implement innovation strategies within a large organisation, it is important, as Benjamin (2006) has observed, to develop an entrepreneurial mindset and culture within any organisation that seeks to foster innovation.
Discussing their concerns with definition, Ucbasaran, Westhead & Wright (2001) observe that entrepreneurship is frequently defined in terms of the commonly used American definition - as new venture creation. Entrepreneurs, they argue, often have to make decisions with little or no access to historical trends, no previous levels of performance, and little if any specific market information surrounding whether new products or services will be accepted. They suggest, however, that innovation can not only create new ventures, but also create new products, new processes and new ways of working.

According to Kao (1991), entrepreneurship can give us new products, new jobs, creative work environments and new ways of doing things. While innovation can take any of these forms, an entrepreneurial culture promotes innovation.

Legge & Hindle (1997) discuss entrepreneurship as the creative application of change to suggest, apparently in opposition to the observed reality, that the act of entrepreneurship leads to an innovation, a new product, process, or organization that changes the balance of market or social forces.

According to West (1997), however,

Innovation is the introduction of new and improved ways of doing things, which is again closely linked with entrepreneurship. (West, 1997:3)

Due to the close relationship between the two, understanding that there are factors which influence innovation as well as entrepreneurship is important for this study because "corporate entrepreneurship has long been recognized as a potentially
viable means for promoting and sustaining corporate competitiveness" (Covin & Miles (1999:47). In this context, Kao (1991:3) suggests that:

Entrepreneurial behaviour involves the ability to identify opportunities based on the new ideas and approaches, and to turn them into something tangible. (Kao, 1991: 3)

Hofer & Bygrave (1992) suggest that the entrepreneurial process is a unique, dynamic and holistic process, initiated by an act of human volition, which occurs at the level of the individual firm involving change of state, discontinuity, and numerous antecedent variables, and generating outcomes that are extremely sensitive to the initial conditions of those variables.

Both innovation and entrepreneurship involve unique, new knowledge which, in turn, requires change, and which occurs as part of change. These may be changes in the market or industry, demographics, process needs or any other organisational needs.

Despite the lack of history, context and market information identified by Westhead & Wright (2001) as surrounding whether new products or services will be accepted, the innovation process is built on the ideas and learnings gathered through the entrepreneurial process. The complexity of these elements suggests that entrepreneurial activity may be a pre-requisite to or/and, a source of innovation (Carrier, 1996).

Alternatively, as Drucker (1985) suggests, innovation may be the specific instrument of entrepreneurship such that:
When innovation occurs in corporations, it is commonly referred to as *intrapreneurship* or *corporate entrepreneurship* and may be used a method of stimulating innovation and using the creative energy of employees by giving them the resources and independence they need to innovate within the firm. (Carrier, 1996: 5)

Many firms have adopted *corporate entrepreneurship*, or *intrapreneurship*, as a strategy for innovation and growth. Kurtako & Welsch (1994: ix) suggest that this strategy attempts to capitalize upon the entrepreneurial abilities of individuals within the corporate framework.

According to Drucker (1985), a business that wants to be able to innovate, that wants to have a chance to succeed and prosper in periods of rapid change, has to build entrepreneurial management into its own system. It has to adopt policies that create, throughout the entire organisation, the desire to innovate and the habits of entrepreneurship and innovation. When the business is managed this way as an entrepreneurial business, Drucker argues, an entrepreneurial mindset and culture will be developed.

Personnel’s desire to pursue opportunity must be carefully nurtured. Words alone will not create this innovative climate. Specific steps such as reward systems, flexibility, not punishing failures, should be taken. If a venture remains too rigidly tied to plans or strategies, it will not be responsive to new technologies, customer changes or environmental shifts. Innovation will not take place because it does not fit in. (Kuratko & Welsch, 1994: 222)
Hamel (1999) suggests that Silicon Valley exists because large companies have been unwilling to abandon the tightly knit safety net of resource allocation rather than because they are incapable of innovation. A disciplined, top-down approach to allocating money and talent gives top management a sense of control. But in a world where the risk of being rendered irrelevant by an impertinent interloper is ever present, according to Hamel, such control is illusory.

As Webb (1994) suggests, people in the future may tend to work more for themselves, less for large organisations. The more able and adventurous employees will develop and market their own specialist skills. Companies, in the future, may be divesting themselves of much of their permanent staff and turning, instead, into organisations that exist by creating the conditions where they can sponsor more entrepreneurial groups of well-paid specialists, brought together to successfully conclude a project. As Jennings (1994) suggests, business needs creative people, and because of that, it must learn to understand, and support, this inventive breed of worker.

The past two decades have seen corporate strategies focused more heavily on innovation. More recently, there has been a growing interest in using intrapreneurship (corporate entrepreneurship) as a way for corporations to enhance employee’s innovative abilities and, at the same time, increase corporate success through its potential creation of new corporate ventures.

However, the creation of corporate entrepreneurial activity can be difficult because it involves radically changing traditional forms of internal organisational behaviour and structure. The desire to pursue corporate entrepreneurship has arisen from a variety of pressing problems including:
• Required changes, innovation and improvements in the market place to avoid stagnation and decline
• Perceived weaknesses in the traditional methods of corporate management
  (Kuratko & Welsch, 1994: 356-358)

A prospective entrepreneur must have the desire to take a good idea through the various development stages. Thus, innovation is a marriage of the vision to create a good idea and the perseverance and dedication to remain with the concept through its implementation. Successful entrepreneurs are able to blend imaginative, creative thinking with systematic, logical processing abilities. If they are able to sense economic potential in business problem by continually asking “what if” and then “why not”, it is suggested that they will develop “an ability to see, recognize, and develop opportunity whose others find only problems” (Kuratko, Welsch, 1994: 44).

2.3 Project success factors

Success means different things to different people and, in projects, the situation is no different. According to Pinto & Slevin (1998) achieving deadlines, delivering within the budget and, making the customer happy are some of the common measurements of project success. However, they suggest that,

There are few topics in the field of project management that are so frequently discussed and yet so rarely agreed upon as the notion of project success. (Pinto & Slevin, 1998: 67)
Nicolas (1989) completed a survey of management literature and conducted interviews within eight companies to identify management practices associated with successful projects. Based on the findings, several principles of project management were identified as being important, even essential to project success. Nicolas observes that a project is usually said to be successful when it satisfies its project objectives. Most project objectives, however, have multiple criteria— including time, cost, quality and safety. Many projects, however, though not considered failures, do not satisfy their objectives for all these criteria. Project management must usually make trade-offs among criteria. If the tradeoffs are mutually agreed upon by project manager and client, the project might still be accepted as a success, even if portions of objectives were not met.

Identifying the factors frequently associated with successful projects, Nicolas (1989) suggests that, to the extent that these practices are present in a Project, the likelihood of success, while not guaranteed, is enhanced. He suggests, moreover, that in most of the situations in which there was a failure, it was due to lack of, or inappropriate use of, the practices and principles identified in the above model.

Some of the major factors Nicholas (1989) identified include: commitment of project participants – project manager, top management, the project team, client - in maintaining and achieving project goals, commitment and involvement of project participants in the project management process, its purpose and values, active involvement of participant in the project.

Nicolas argues that not having, or wrongly applying the factors that lead to project success is often, a contributing factor in
project failure. He says, thus, that while the factors can be thought of as forces driving a project toward success, they can also be thought of as forces driving the project toward reduced performance or even failure if they are weak, have been poorly identified or do not exist.

Nicolas has further defined the role of each participant in making a project a success and identified their commitment and involvement as an important project success factor. In this way, Nicolas (1989) argues, project success factors can be used to assess project performance and suggest alternative actions during project delivery. Nicolas provides an interesting view of project success factors, which have not been frequently discussed to this point. However, like most researchers in the field, he neglects the importance of innovation and creativity for project managers as a critical factor influencing the success of projects.

A more recent study by Shenhar, Tishker, Dvir, Lipovetsky, Lechner (2002) reviewing 127 different projects shows that all success factors are not common to all projects, for various reasons. One apparently obvious reason is that not all projects are the same. Each project is different and each project environment is different. As an example, they suggest that high-uncertainty projects must be managed differently from low-uncertainty projects, and high-scope projects differently from low-scope projects.

Considering managerial factors influencing the success of projects, Shenhar, et al (2002) argue that different factors influence success in different types of projects. Further, they observe that, when investigating success factors, most studies try to identify common factors for project success while making little or no differentiation between projects. In this study,
therefore, it is argued that innovation cannot be expected to manifest to the same extent in every project. Innovation, it is anticipated, will be used differently by different project managers, and used in different ways in different projects. In response to the findings of Shehar et al, this study will seek to differentiate where innovation is a ‘must’ from where it is ‘something that adds more value’ and from where it is not so relevant.

There are many factors influencing project success, both managerial and technical. A more recently identified set of managerial skills used in projects requires emotional intelligence. Goleman (1998) suggests that emotional competence is relatively under-developed.

As Cherniss (2000) submits, the contribution of Goleman's emotional competences can make a substantial difference in determining successful decisions in projects.

According to Goleman's (2001) re-defined Emotional Intelligence Framework, self-awareness, self management, social awareness and relationship management factors are based on the emotional intelligence of individuals and lead to creative decision making. Understanding the influence of factors like Emotional Intelligence in projects (Fernando 2003:64) is expected to help the organisation to understand those human factors, which have, to this point, not been widely discussed in Project Management Literature. This present research will, therefore, focus on both human factors and organizational factors that lead to project success and the successful implementation of innovation strategies in projects.

According to PMI (2004), project organizations usually adopt organizational structures which differ from common functional
structures where project management is a part of day-to-day operation. In these cases, they tend to adopt or adapt a *projectised* structure – in which project managers are likely to be entrusted with total authority and ownership for their projects. What lies between organisational and projectised structure is the operational matrix of the organization, where project managers may be required to report to more than one person, and where they have more authority levels than in a functional organizational setting. PMI suggests that Matrix organizations and projectised organization encourage greater freedom and authority for project managers.

Supporting these same concepts, McManus and Wood-Harper (2003:) observe that:

> Old-style project organizations had well defined boxes on an organization chart, and everybody knew exactly what each box meant. These organizations did not like people to do things outside their boxes … senior management set rules, the rest obeyed. The result, all too often, was not-too-subtle interdiction of both initiative and personal responsibility. (McManus and Wood-Harper, 2003: 13)

They further suggest that,

> Punishment for unsuccessful initiatives tended to outweigh rewards for successful ones, so initiatives were rare, and successful initiatives tended to become someone else's property. (McManus and Wood-Harper, 2003: 13)

To better understand project success, failure factors have also been investigated in this present research study. The Case
Study interview questions (see appendix B) were designed with this in mind. Discussing success and failure factors, one of the world renowned project management experts of the past several decades, Harold Kerzner (2003), has argued powerfully that these characteristics are significantly different, clearly showing the evolution of project management during the last decade at least.

According to Kerzner (1987), the definition of project success has involved both meeting customer expectations and, getting the job done within the commonly accepted constraints of time, cost, and quality. Affirming the standards-based definition used by many other project management authors, Kerzner suggests that project management can be defined as successful when it has achieved the project objectives:

- Within time
- Within cost
- At the desired performance/technology level
- While utilizing the assigned resources effectively and efficiently.

(Kerzner, 1987: 3)

In this respect, Kerzner (2003) is identifying the accepted practice of the time. More recently, however, he has come to argue that very few projects, especially those requiring innovation, are accomplished by the strict application of traditional notions. He now suggests that successful projects usually demand trade-offs or scope changes on time, cost, and quality. Maintaining that time, cost, and quality can still be taken as critical success factors (CSFs) for the project, Kerzner suggests that many successful project organizations
increasingly tend to measure success by evaluating the CSFs with KPIs (Key Performance Indicator).

Kerzner (2003) further divides project success factors into two groups: primary and secondary factors. Primary factors are the definitions of success seen through the eyes of the customer; secondary factors are the definitions of success seen by the organization for internal benefits. Summarizing these factors in a tabular format (see Table 2.1), he suggests that achieving 86 percent of the specification is acceptable to the customer. More pragmatically for continuing business operation, Kerzner observes that when follow-on work is received, then the original project can very well be considered a success.

Discussing failure factors, Kerzner (2003) says that the true definition of failure is when the final results are not what were expected. Failure is simply about unmet expectations. Identifying two main failure factors, he suggests that planning failure means the project was not defined or not planned to meet the customer’s expectations. Planning to meet unmeetable expectations is the main reason for planning failure. Actual failure, in contrast, happens when what was planned is not achieved because of poor performance.

In tandem with project success factors, the perception of project failure factors has also evolved over time. In the 1980s, according to Kerzner (2003), we accepted that the failure of a project was largely a quantitative failure caused by:

- Ineffective planning
- Ineffective scheduling
- Ineffective estimating
- Ineffective cost control
- Project objectives being "moving targets"

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within time</td>
<td>Follow-on work from this customer</td>
</tr>
<tr>
<td>Within cost</td>
<td>Using the customer's name as a reference on your literature</td>
</tr>
<tr>
<td>Within quality limits</td>
<td>With minimum or mutually agreed upon scope changes</td>
</tr>
<tr>
<td>Accepted by the customer</td>
<td>Without disturbing the main flow of work</td>
</tr>
<tr>
<td></td>
<td>Without changing the corporate culture</td>
</tr>
<tr>
<td></td>
<td>Without violating safety requirements</td>
</tr>
<tr>
<td></td>
<td>Providing efficiency and effectiveness of operations</td>
</tr>
<tr>
<td></td>
<td>Satisfying OSHA/EPA requirements</td>
</tr>
<tr>
<td></td>
<td>Maintaining ethical conduct</td>
</tr>
<tr>
<td></td>
<td>Providing a strategic alignment</td>
</tr>
<tr>
<td></td>
<td>Maintaining a corporate reputation</td>
</tr>
<tr>
<td></td>
<td>Maintaining regulatory agency relations</td>
</tr>
</tbody>
</table>

Table 2.1: Success factors  *(Kerzner, 2003:123)*

During the 1990s, we changed our view of failure from being quantitatively oriented to qualitatively oriented. A failure in the 1990s was more likely to be attributed to:

- Poor morale
- Poor motivation
- Poor human relations
- Poor productivity
- No employee commitment
- No functional commitment
• Delays in problem solving
• Too many unresolved policy issues
• Conflicting priorities between executives, line managers, and project managers

Kerzner’s guide to project success and failure factors serves as a key reference for many more recent researchers in Project Management.

Ultimately, as Lewis (2005) confirms,

The only truly successful project is the one that delivers what it is supposed to, gets results, and meet stakeholder expectations. (Lewis, 2005:32)

2.4 Innovation as a project success factor

As previously established, recent researchers have moved away from traditional approaches to project success based only on Time, Cost and Quality, Thiry (2005), for example, suggests that when projects must deliver new or innovative products, services or results that have an impact beyond a limited area of the organization, then project managers must consider a much wider range of business benefits.

Reporting the impact of innovation in project management, Hildebrand (2005) identifies two approaches: whether it is required - or not. While traditionalists may still accept the rigor of working within the structured framework of project management, Hildebrand argues that this stifles creativity, slows innovation and creates a project management framework that prevents the team from brainstorming creative solutions.
Hildebrand (2005) details recent research by Taylor at Stanford, which shows working within a project framework does have an effect on how quickly new ideas and innovations are embraced. Taylor’s research has covered innovations across a range of heavily project-driven industries such as pharmaceuticals, construction and aerospace/defence. In these industries, rich in specialized disciplines with mature processes and structure, it’s more difficult to disseminate what Taylor calls a systemic innovation, one that can change the way entire segments of an industry work together. “Those systemic kinds of innovations are the kind that leads to the biggest changes in productivity.” (p.126)

Hildebrand (2005) argues that, although industries that rely heavily on a project framework risk a slower acceptance of innovative techniques in the largest sense, the fact is, these industries still come up with plenty of new and creative ideas. In fact, it is argued, creating a standardized project management environment means that content experts don't have to sweat the details, leaving them free to concentrate on the things they do best.

Based on his interviews with industry experts, Hildebrand (2005) suggests that innovation can flourish within a project management framework as long as the team focuses on five key learnings:

- Tie projects to business goals
- Build innovation into early project stage
- Consider long-term repercussion
- Micro-innovate within the project process
- Institutionalize project innovations across corporate functions
Extending the scope of the same research, Bessant (PM Network, May 2005:41) has suggested that the structures and procedures which a good project manager puts in place to ensure a job gets done will increasingly act as a block on the wider, more open-ended forms of creativity—but they provide a perfect environment within which problem-solving creativity can be expressed around the cost reduction, time compression and quality enhancement themes. According to Bessant, balance needs to be established between creativity and control. Project management, when applied thoughtfully, doesn't need to conflict with creativity and can certainly help innovation.

From a Eurostat survey of 60,000 enterprises across the European Union member states and Norway and Iceland, Blackely (2004) reports that nearly 25 percent of those pursuing innovative services, products and processes reported that innovation costs were too high, which limits progress. However, more than 40 percent of those same enterprises indicated that innovation greatly improves quality, and almost 30% pointed to increases in production capacity and enhancement in the range of the products produced - making the high price well worth the cost and highlighting the perception that, constantly pressured to produce projects faster, better and cheaper, global business leaders must capitalize on their though power.

Business leaders expect bottom-line results, but when they give team members’ freedom to innovate, they gain competitive advantage that transcends a single project (Blakely, 2004)

As Sheridan (2004) explains, a professional source of project oversight provides creative people with freedom to pursue the activities most aligned with their talents and passion. In this context, innovative teams must produce a new product or
service that customers will use and enjoy while best managing the limited resources that the sponsoring stakeholders have provided.

As a Project Management Officer for Vermont State with the American Department of Information and Innovation, Conklin (2004) reports that,

If you are working consistently, you are not in fire fighting mode and you have more time for innovation. Good project management will allow you the flexibility for innovation rather than fixing the problems of mismanagement. (PM Network, 2004 28)

Conklin (2004), cautions however that when people have been in the same place for a long time, change becomes more difficult, even when there is a room for innovation in lot of areas.

Reporting in the same journal, Scott (2004) observes that,

A creative and innovative team can only be realized if the lead is familiar with compatible and complementary working styles. If a leader has no expertise in this area, it could take years before an ideal team comes together. Without the right team, novel strategies will never be realized. If the team is led by an idea leader, risk taking and process improvement will be staple concepts in a team-based work environment. On the other hand, micromanagement will stifle and discourage innovative thinking and planning (Scott, 2004: 28)

Supporting this view, Highsmith (2004) confirms that,
The team must be empowered to make decisions as a self-organising - not self-directing - group with a leader. That allows them a lot of freedom to do things and experiment. (Highsmith, 2004: 29)

Despite relatively slow acceptance of the concept that creativity and innovation promote increased project success rates, it is seen as a concept that energises project teams. Wysocki, Beck, & Crane (2000) suggest that project driven organizations are highly receptive to new ideas:

The success of team members totally depends on the success of the project. In the true project team all ideas are welcomed and all ideas are discussed (Wysocki, Beck, & Crane, 2000: 49)

Congruently with Goleman (2001) and Cherniss (2000), Wysocki, Beck, & Crane (2000) believe that Project Management competencies should include business, personal, interpersonal and management competencies. Innovation is seen as one of the areas of personal competence which includes: development of innovative and creative approaches to problems when faced with obstacles or limitations, taking of calculated risks, taking persistent actions to overcome obstacles and achieve solutions and, putting in whatever effort is needed to get the job done. In this context, particularly, the literature suggests that only a few authors have identified innovation as a critical factor influencing project success.

After querying more than 200 Project Managers, Roman (1986), found that, outside of the construction industry, little use was made not only of the more arcane planning and control techniques, but the more common ones as well. In
scheduling projects, for example, he observed that most project managers still do not go beyond using Gantt charts.

Roman (1986) argued, twenty years ago, that one main reason for the apparent lack of interest in project development is that project managers have not received training on the use of planning and control techniques. In fact, they are often selected to head projects because of their technical expertise or their apparently demonstrated ability to get things done effectively. Only rarely, Roman observed, do project managers receive specialised training in actually managing projects. Their exposure to many of the planning and control techniques that have emerged is very light.

Consequently, when given project responsibility, they tend to invent planning and control techniques that seem to be suitable to their particular circumstances. Existing planning and control techniques are not always appropriate to the specific management requirement of particular project.

Anticipating Wysocki, Beck, & Crane (2000), Roman (1986) observed that large organizations operating in a dynamic technological environment were increasingly becoming sensitive to the potential for organisational methods that encourage innovation. As a consequence, there appeared to be a growing trend to group people into relatively small project teams. Roman suggested that an effective project manager would frequently innovate managerially as well as technically, to accomplish project objectives.

For Roman (1986), project managers needed to look beyond their existing commitment to the organization in order to effectively utilise resources, maintain and possibly upgrade the technical organization and, perhaps, acknowledge a selfish but
realistic motivation of sustaining themselves in their roles as
project managers. Roman considered this acknowledgement of
innovation as adding entrepreneurial responsibilities to the
project management role.

Expounding the importance of innovation in the project
selection process. Roman (1986) suggested the need to:

- Set aside seed money to be used to investigate promising
  activities and encourage professionals to champion new
  projects.
- Organisationally establish a neutral screening committee to
  evaluate such prospective projects.
- Provide the project champion with some entrepreneurial
  inducement or incentives to encourage new projects.
  (Roman, 1986:37)

According to Roman (1986), creativity is usually essential in
project work, in projects which involve some transference of
past experience or in totally new projects, depending on the
nature of the project can call for creative solutions if the project
is to be successfully completed.

Roman (1986) suggests, additionally, that creative impulses
are normally used poorly because people are not exposed to
situations in which a creative response is either encouraged or
fostered. Organizations recruit young and relatively
experienced people, expecting them to use aggressive,
imaginative, and creative approach to their job activities. Once
ensconced, he Conklin (2004) similarly observed, these people
rapidly become disillusioned when they find little receptivity to
new ideas, especially to innovations that promote a radical
departure from the established norms of the organization. Despite this tendency towards self-protection, Bhide (1994) suggests that,

Successful entrepreneurs don’t take risks blindly. Rather they use a quick, cheap approach that represents a middle ground between planning paralysis and no planning at all (Bhide, 1994: 148)

Bhide (1994) observes that entrepreneurs spend little time researching and analysing while project managers spend most of their time in planning aspects which involve both research analysis. However, he further observes that it is a must to screen opportunities quickly without waiting for all the answers, which can be directly applied for project planning. PMI (2004) suggest that project planning is done through “progressive elaboration”, that it is not required to wait until all the information becomes available to start planning. As soon as the Project Manager and the Project Team get to know about the project, planning should begin so that, when more information becomes available, the original plans can be updated.

According to the PMI (2004), the effective project management process consists of 5 processes:

- Initiation,
- Planning,
- Executing,
- Monitoring and
- Controlling and Closing.

As controlling and monitoring activities represent a key process in project management, some authors query the level of
innovation that can be encouraged in a controlled environment. In a detailed discussion on Project Control, Meredith & Mantel (2003) echo traditionalist risk aversion in observing the importance of balance in encouraging innovation and creativity in projects. They propose that,

First, the more creativity involved, the greater the degree of uncertainty surrounding outcomes. Second, too much control tends to inhibit creativity. But neither of these dicta can be taken without reservation. (Meredith & Mantel, 2003: 588)

Based on the research of technology historian Thomas Hughes (1998) involving large scale projects in Air Defence, Missile development, Internet Defence capability, and the Boston central Artery/Tunnel, Meredith & Mantel (2003:7) acknowledge that, in order to achieve their objectives, large-scale projects require non-traditional management styles, non-traditional organizational design, and non-traditional approaches to problem solving.

Reporting research with the Cutter Consortium, Highsmith (2000), describes a case where project managers were not willing to follow standard processes because they believed them unnecessary for achieving the final outcomes. As Highsmith explained,

Our parent corporation is solidly in the CMM (Capability maturity model) camp. However my project has critical time constraints, and the requirements are evolving constantly, so that generating and maintaining the range of documentation required for a typical corporate project would doom this one. We’re still disciplined—in rigorous testing, for example—but in different ways. We just hope
we get this project finished before the CMM auditors show-up. (Highsmith, 2000: 17)

In acknowledging the importance of fostering innovation in projects, Highsmith (2000) says,

We have to remember that ultimately e-project management is about only one thing—innovation … We must maintain some control over the project delivery process, but if we stifle innovation in our quest for “control”, the result will be anemic at its best. (Highsmith, 2000: 21)

He believes only innovation can make a difference in projects and suggests on-time, on-budget applications won’t help build new markets, what we have already seen as criteria for project success in early days project management.

Foreshadowing more recent work by McKenzie (2003a) and Béchervaise, McKenzie and Beal (2003), Roman (1986) suggests that establishing a creative climate is essential in project organizations, to encourage innovation. Organizations where project operations represent a significant part of activities, it is important to objectively evaluate the power structure and determine whether there are indeed scared cows, and what might be done to circumvent these obstacles in order to initiate necessary creative and innovative activity.

There are many effective stimulants to creativity that project managers can employ. A shift of assignment or job rotation can activate the creative process. People can lose their edge and even become dull with constant exposure to routine or predictable work. The change inherent in project operations is a stimulating force, but
even in this environment, a long-term project can vitiate the excitement and challenge of the work (Roman, 1986).

Rotation to different types of assignment or projects that broaden the individual’s perspective can strongly stimulate creativity. The exposure to new people, the change of the immediate work environment, and the crossbreeding of ideas can inspire added insight, leading to creative suggestions. The project manager can also encourage assignments that may at first appear prosaic but which can stimulate curiosity and lead into fertile, new professional areas. Something that is proactive, something which brings the professional into a thinking situation can be vitally instrumental in nurturing individual creative activity McKenzie (2003b).

Saladis (2004) suggests that Innovation is essential for project success. Sometimes new ideas are just beyond our line of sight and we need the team to help us see beyond the boundaries or over the hill.

Encourage your teams to be creative, question the rules occasionally, and promote internal, informal communications. Provide an environment that celebrates success and capitalizes on mistakes. Success breeds more of the same and mistakes, with the right guidance, lead to new thinking and improved ways of getting things done (Saladis, 2004).

Confirming the growing awareness that traditional project management rules are increasingly constraining and even inappropriate, Saladis (2004) observes that,
Project managers face new situations every day and occasionally rules have to be questioned. Creative thinking is initiated when rules and the status quo are challenged and today’s demanding project and business environment require new ideas, better tools, methods and fast thinking. This means that today’s project managers must possess an innovative quality and the ability to influence and encourage their teams to seek creative solutions to new and more complex project situations. (Saladis, 2004)

2.5 Factors influencing innovation strategies

Implementing innovation strategies within a large organisation is not a simple task as it tends to threaten the current managerial value system (Bourke and Béchervaise, 2002). Everything tends to be controlled by an apparently bureaucratic system where everything must be done according to a standard process. In this restricted environment, innovation is neither expected nor recognized.

Vedin’s (1980) research on innovation within large Swedish companies identified three different factors as determinants of a company’s innovative performance: environment, corporate structure, and management orientation. She showed that each of the companies in her sample tried to adopt innovation in different ways. Instead of trying to create an innovative mindset and culture within their own organization, Vedin's (1980) companies adopted the take-over strategy characteristic of GE corporation (Rees, 2006) to buy in a mindset.

In accord with Benjamin’s (2006) findings at individual, local, national and global levels, Kuratko and Welsch (1994) have
suggested four factors which they believe offer a tendency towards entrepreneurship.

- **Personality Factors:** such as achievement, independences, autonomy, emotional stability.
- **Demographic Factors:** such as age, sex, employment, size of employer, marital status
- **Education Factors**
- **Situational Factors:** such as parental influence, role models, financing.

(Kuratko and Welsch, 1994:432)

Encouraging innovation requires a willingness to not only tolerate failure but also to learn from it. Innovation requires that an effort be made by top management to educate employees about innovation and entrepreneurship. (Kuratko and Welsch, 1994:360)

Hornsby, Naffiziger, Kuratko, and Montagno (1993) introduced an interactive model of corporate entrepreneurship to understand the factors leading to successful entrepreneurship. In doing so, they attempted to describe the interaction of organisational factors and individual characteristics ignited by a precipitating event that leads to successful intrapreneurship. This precipitating event could be a change in company management, a merger or acquisition, development of a new technology, or an event that acts as an impetus for interaction between individual characteristics and organisational factors.

In developing their argument, Hornsby, Naffiziger, Kuratko, and Montagno (1993) identified crucial organisational characteristics affecting innovation uptake they have identified as including: Management support, work discretion, rewards and re-inforcement, time unavailability, and organisational boundaries. Individual characteristics included: risk taking propensity, desire for autonomy, need for achievement, goal
orientation, and internal locus of control. When people had the ability to address these characteristics and when resources were available, the decision to act entrepreneurially and development of business feasibility planning most frequently led to idea implementation.

Jennings (1994) discusses two main types of factors associated with entrepreneurship: Psychological factors and personality factors. Psychological factors associated with entrepreneurs include: need for achievement, locus of control, propensity for risk, and tolerance for ambiguity. Personality factors include: self-confidence, opportunism, and ambition. According to Jennings, (1994), most researchers tend to consider the preceding psychological and personality factors as a form of creative energy that allows the entrepreneur to start and implement a successful venture.

Brazeal (1993) developed a model that focuses on a joint function between innovative-minded individuals and organisational factors. He suggests that, in order for an organization to promote innovation among its employees, careful attention must be given to melding individual attitudes, values behavioural orientations with organisational factors offering structure and reward. Ultimately, Brazeal observes, the key objective is to enhance the firm’s innovative abilities through an organisational environment supportive of such individuals.
As Brazeal (1993) reports, the main challenge is in creating a culture of innovation within a large company where innovation is not accepted in all the areas of the organisation. In the Teleca project environment, as in most of the generic project models where everything is expected to be implemented according to a pre-determined plan, innovation has not been encouraged to foster an entrepreneurial culture.

In large organizations and established companies, there appear to be several factors likely to prevent successful internal implementation of entrepreneurial ideas. According to 1000Ventures.com, these can include policies, people, and practices built along set lines, lack of motivation due to highly structured rewards schemes, return-on investment targets, and lack of clear accountability for the venture. These factors, Brazeal (1993) argues, can lead organisations to be inflexible and encourage everyone to follow set standards to achieve set targets. Such characteristics show an organisation that requires a transformational change (Hamel, 2001) to foster innovation within its culture.

Supporting the importance of creating the right organisational environment to support radical innovation, Simon, McKeough, Rinehart & Alexia (2003:19) identify the need for both physical protection and psychological support for the teams involved in innovative projects. Physiological support is something management must demonstrate by their actions because teams need this, especially at low points in their innovative
projects. Suggesting the importance of physical protection they report that:

Groups can be protected so that concepts can incubate and develop. Protection can be in the form of physical isolation, or insulating the organisation to minimise distractions and pressures. (Simon, McKeough, Rinehart & Alexia, 2003: 19)

Creating an entrepreneurial mindset and culture within a large organization is sometimes seen as too informal where large organizations are governed by formal hierarchies, red tape, rigid rules and procedures, and approval processes which may be time consuming and even unnecessary. Entrepreneurial firms tend not to waste this time on unnecessary formality. Things get done more quickly when there is a less formality.

According to Walton (1987), the more numerous the requirements for an initiating party to obtain approval, the more difficult it is to innovate, and the longer it takes to move an innovation from conception to established practice.

Short time to market, as Hindle and Legge (1997) observe, is one of the main advantages of entrepreneurial firms with the ability to act quickly to new opportunities. According to Telford (1982), however, the decision to adopt or not to adopt an innovation is not an immediate act but a complex process which takes place over a period of time, and which includes stages of awareness, interest, evaluation, and trial before full adoption.

Exploring the challenge of making innovation self-sustaining, Prather (2000) describes three arenas of activity (education, application and environment) that characterise innovative
organizations and uses them to propose a framework for creating self-sustained innovation. He identifies the important factors as being: challenge, risk taking, trust and openness, idea time, idea support, valuing diversity in thinking style, freedom, playfulness and humour, absence of interpersonal conflicts, and debates.

Hippel, Thomke, and Sonnack, (1999) discuss the way the management at 3M successfully navigated a process leading to breakthrough thinking, by applying the lead-user process. They report that most lead users are happy to share their knowledge at no charge with their preferred company, and that they make innovations because they want to, rather than for business or to gain competitive advantage. In the case reported, users were seen as innovators and sources for breakthrough thinking. Identifying the lead users is not easy, but the outcome at 3M was encouraging.

Also taking 3M as the major case for innovation Maylor (2003) confirms that it is important to allow time and space for individuals to carry out the exploration:

3M famously allow their development staff up to 15 percent of their working time to pursue ‘personal projects’ – work that is not necessarily directly related to their normal role. The result is a stream of new products, which include the eponymous Post It note, and a turnover in the sale of these ideas that is predicted to exceed their sales of their won products. (Maylor, 2003: 79)

Maylor (2003) further suggests that it is important to protect ownership of ideas, a rapid development process. He suggests that effective project directed organisations,
As Peter Drucker (1985) has observed, business should not try to become entrepreneurial without changing its basic policies and practices. Organisations should insert innovation into their management systems before they seek to expect innovative practice. One centralized function, Drucker (1985) asserts, cannot make the difference we see in Silicon Valley or in small entrepreneurial firms. If the cultural shift can be implemented and supported in all the areas of organisation, including the Project Management unit, however, then the company will be ready to take another step towards the future.

2.6 Content Analysis of Organisational Literature

Organisational literature available at Teleca was reviewed to understand the current strategies built around innovation and project management.

Teleca (see 1.1) is a large organisation with over 100 years of history where everything has been managed according to rigid rules and processes. Some areas of the organisation, including research and development, have been encouraged to go beyond the established processes to innovate. Areas like project management, however, have traditionally been managed under heavily process-oriented discipline and largely remain under this managerial yoke. Project management at
Teleca has been built around a global project management process in which everyone is required to be following the same steps in project delivery. Even though some flexibility in the process is accepted, which allows project managers to modify their project requirements within mandated constraints, it has been expected that everyone will follow the process. This is made clear in the organisational project management process documentation.

Training documentation for the project organisation is established within the same constraints. All project managers are required to undertake from one to four days training in the standard project management process. This is compulsory training for all project managers.

Standard project management documentation templates to initiate a project, to monitor, control and conclude a project, are accessible to all project managers and project team members, and it is a requirement that everyone will use the templates given.

Content analysis of this documentation used in Teleca project organisation (see 3.4.1) suggests a highly process-oriented organisation offering very little flexibility and freedom to deviate from published procedures, let alone to innovate. Instead, the documentation presents a very technical process of monitoring set goals, time, budget, quality and technical requirements, rather than a managerial process.

Despite the close regimentation of processes, however, project manager performance appraisal requires that managers display managerial skills for which they are neither trained nor rewarded. Performance criteria documents covering required ‘soft skills’ in fact, display a significant gap between what
project managers are trained to do and what they are assessed on the basis of.

Interview responses from project managers, managers and customers (Chapter 4) offer some understanding of how these organisational expectations form project managers and what support the organisation actually provides in order for its project managers to achieve those expectations.

2.7 Chapter conclusion

This chapter has provided a review of the research literature available in fields related to the development of innovation and entrepreneurship within an organisation. It has also provided an outline of the elements of project management provided by Teleca through its organisational publications and training manuals as they impact on the innovation strategies of project managers and on the encouragement of innovation in projects at Teleca.

The chapter has observed that project management at Teleca is seen as a technical rather than a managerial process, and that 'soft skills' like creativity, innovation, and emotional intelligence are neither developed in the field nor encouraged as skills that project managers should possess. However, as project management carries strong elements of the managerial process, this chapter has established the importance of these factors in making projects successful.

On the basis of this literature review, the following research questions have been identified.

1. Is innovation an element in influencing the success of projects and project managers?
Despite some variation in the presentation of data in addressing this question, the literature review increasingly appears to confirm that innovation – though variously integrated with and largely misconceived as entrepreneurship, is integral to the success of many projects.

Assuming that this is the case, it then becomes necessary to focus on the means in which this happens and to provide a model within which innovation will facilitate successful project outcome. As a result, the second major research question addressed in developing this study became:

2. What are the factors influencing the successful implementation of innovation strategies of project managers?

The study designed to consider this research question is described in the following chapter. This study has been developed to provide an increased understanding of the importance of innovation in project management.

Chapter three provides a description of the research design developed to explore data collected through interviews with members of the sample organisation, Teleca and to compare them with learnings derived from the existing literature to identify new trends and patterns in best project management practice.
Chapter 3 Research Method

Research ‘methodology’ can be seen as a way of thinking about and studying social reality”. (Strauss & Corbin 1998:3)

This chapter specifies the methodology used to understand the social reality of innovating in project management within a large organisation, and evaluates the “set of procedures and techniques for gathering and analysing data” (Strauss & Corbin, 1998:3), used in achieving this.

In developing the research design, this chapter provides an assessment of the research methods available to establish a practical design specific to the exploration of the research questions (see 3.1). It then evaluates each aspect of the proposed design and describes the research methods actually used to complete the research. The strengths and limitations of a range of seemingly appropriate research methods are assessed in determining the most appropriate research design, and provide the rationale for adopting the methodology described.

3.1 Research questions

In seeking to better understand the role that innovation plays in making successful decisions and completing successful projects in project organisations, the following two interrelated research questions were identified and established (see 2.7) through the review of literature and a brief content analytical description of published materials provided by the sample organisation (see 4.2.1 for more detailed discussion):
1. Is innovation an element in influencing the success of projects and project managers?

2. What are the factors influencing the successful implementation of innovation strategies of project managers?

3.2 The research design

This study has utilised a qualitative approach (see 3.2.1, 3.2.2), to develop an exploratory case study design (see 3.2.3, 3.2.4). The methodology selected has used key informant interviews with semi-structured open-ended interview questions as the major data collection instrument (3.6) to investigate the innovation strategies of project managers in a large multinational telecommunication organisation, Teleca (a fictionalised name – see 3.4.1)). Data analysis was completed using a modified form of content analysis (see 3.8.1) and the application of some of the concepts of grounded theory (3.8.2).

3.2.1 Quantitative and qualitative research

The literature review (see chapter 2) was undertaken to establish and critique, where appropriate, the existing body of knowledge in the field of project management and leadership towards innovation. This review established the need for an increased understanding of the role of innovation in project management. The data collected in this study has then been compared with the established body of knowledge with the intention of developing new and increased knowledge related to the research questions under investigation.

We can collect qualitative as well as quantitative data through qualitative methods. Generally we refer to data as quantitative when they are statistically analysed and are expressed, presented or measured in numbers. Data, which cannot be statistically analysed and are difficult to measure in numbers are often called qualitative: for example, strong, weak, easy or difficult.

(Ghauri, et al, 1995:95-96)

White (2000) provides a useful comparison between quantitative and qualitative data. Quantitative data, he observes,

... is based on meanings derived from numbers, and the collection of data is numerical and in standardized form. Analysis is by the use of tables, diagrams and statistical methods. (White, 2000:107)

Because the sample size (see section 3.4) for this study is necessarily small and the focus of the research questions exploratory, the application of quantitative procedures could be expected to submerge essential factors within necessarily large-scale statistical procedures with highly dubious validity (Hussey and Hussey, 1997). From this perspective, it appears, a quantitative methodology would be inappropriate for investigating the research questions identified in this study.

Despite Berg's (2001) observation that qualitative research takes much longer, and requires greater clarity of goals during the design stages, White (2000) explains that qualitative data may be non-standardized and use a variety of formats, while analysis is often undertaken through the use of descriptions and the identification of concepts.
As a consequence, it is argued, the factors sought in exploration towards the research questions would be poorly addressed through the collection of quantitative data. Instead, it is proposed, meaningful data interpretation requires meanings expressed in words. In this study, as discussed in the following section, qualitative data is collected through a case study approach using semi-structured interviews (see Appendix B for indicative questions).

3.2.2 Qualitative research design

As previously argued, this study applies a qualitative, case study (3.2.1) approach rather than attempting to utilise quantitative methods such as surveys and experiments. There are many reasons for favouring the selection of a qualitative method when only a small sample is available. Jankowicz (1995) identifies these in summarising the work of Miles and Huberman (1994):

- It depends on a deep familiarization with a normal or typical real-life situation;

The aim of this research is to understand a normal and typical real life situation in a project-oriented organisation. Utilising my background and experience in project management in this environment (see 1.1 and 3.4.1), I am able to provide a deep familiarity with the issues in the organisation. These are expected to contribute to the success of using a qualitative approach.
• It involves a search for significant themes running through disparate sources;

To understand the role that innovation plays in project success and the factors influencing innovation strategies of project managers, it is crucial to search for significant themes. A qualitative approach helps accomplish this objective.

• It results in an holistic understanding of the situation, of the factors involved and how they interrelate, identifying the less obvious issues as well as those which initially grab your attention;

It is important to establish a holistic view of the situation to come to practical conclusions and applicable recommendations from this study. Understanding the factors influencing project success, and factors influencing the success of innovation strategies, and their interrelationship, are identified as being more likely to be achieved through a qualitative approach than by the application of quantitative methods.

• It demands that you take your informants seriously in their own language, and from their own point of view, suspending your own personal and project-related pre-conceptions while you are gathering data, no matter how legitimate those preconceptions might be;

To gain access to a working organisational site, it is necessary for informants to be given the freedom to express, and expand upon, their own ideas and views, as this is the primary source of data collection for an exploratory study (Jankowicz, 1995). Conclusions and recommendations will be made using these data, so the responses from them will be taken seriously.
It seeks to discover how people understand the situation or issue you are investigating, and how that understanding guides their actions;

Qualitative research methods support efforts to understand the innovation strategies of project managers. To provide access to the detail of the research question, it is expected to discover how project managers within the project organisation understand the role innovation plays in project success. Further, it is expected to assist in understanding factors impacting on project managers' abilities to make innovative decisions, as well as their capacity to innovate.

3.2.3 Case Study Approach

3.2.3.1 The nature of the questions

According to Yin (1994), case study is now accepted and used extensively in social science research, and is a frequent mode of thesis and dissertation research.

As Berg (2001) suggests,

Case Study methods involve systematically gathering enough information about a particular person, social setting, event, or group to permit the researcher to effectively understand how it operates or functions (Berg, 2001:225).
Yin (1994) supports this view and suggests that case study allows the investigation to retain the holistic and meaningful characteristics of real-life events, including organizational and managerial processes.

Because this study involves only a small group of people in a single organisation, all of whom have experience in the subject field, and all of whom are prepared to provide insights into the issues related (see 3.1), case study was selected as the most appropriate approach.

Ghauri, et al (1995), similarly identify the main purpose of a case study approach, suggesting that,

Instead of testing existing hypotheses, we seek insight through the features and characteristics of the objects being studied (Ghauri et al, 1995:88).

Providing a useful checklist of the major features of a case study research design as he has developed it, Yin (1994) requires the study to provide clear identification of:

- questions
- propositions, if any,
- unit(s) of analysis
- logic linking the data to the propositions; and
- criteria for interpreting the findings

Yin (1994: 20)

Including case study questions as a component of the research design, Yin (1994) suggests that a case study generally
answers how and why types of research questions. If the purpose of the study is to gain insights into a situation, however, Yin suggests that what questions can also be investigated using case study.

In this case, the research questions (see section 3.1) can be primarily seen as what questions. The insights gained through the research inter alia, however, seek to answer a number of why questions. Implicitly, it seeks to explain why projects fail in an organisation, sometimes at a dramatic rate; why project managers don’t make innovative decisions; whether they are capable of doing so; and, whether the organisation really supports innovation in projects.

According to Jankowicz (1995), case study is effective for the exploration of issues both in the present and in the past, as they affect a relatively complete organisational unit (single case study) or group of organisational units (comparative case study).

Jankowicz (1995) suggests case study method is recommended when a research study focuses on a set of issues in a single organization, to identify the factors involved in an in-depth study of the organization or, to choose a smaller unit of analysis, a single department, within it. Alternatively, if a number of variables has been identified whose importance to the present organization is to be explored, it is possible to carry out a comparative case study, in which the same question may be asked in several related organizations, including the original site. Jankowicz further suggests that the great advantage of the case study over other [essentially qualitative] methods is that it attempts to be comprehensive, and involves the researcher in
describing and analysing the full richness and variety of events and issues in the organization or department in question.

3.2.3.2 Unit of analysis

The research reported in this thesis is based on a specific case using one single organization so that a single case study has been completed using the project management group of an organisation as the unit of analysis (see 3.2.3). The outcome of this case study, as a result, is expected to suggest success strategies for similar types of organisational situations.

Difficulties with Case Study, as described by Jankowicz (1995:181), include the need to use multiple sources of evidence to check out and confirm initial conclusions, which Yin (1994) would identify as difficulty with establishing the unit of analysis; the need to manage and maintain a growing database; and the need to construct an inferential chain from thesis, via database, to evidence provided for the final conclusions.

Buchanan, Iyer & Karl (1999), discussing some of the disadvantages of using case study as a research method, recognise the vigorous debate surrounding a single case being insufficient to generalise theory. This research is not intended to build generalisation and theory. Instead, it aims to provide practical recommendations to a specific organisational situation. In consequence, case study has been selected as the suitable approach.

3.2.3.3 Generalisability and the Single Case Study

Although it remains tempting to suggest generalisability to similar types of organisational settings, it has to be clearly and consciously remembered that, as Glesne and Peshkin (1992)
point out, because each organisation is different, the findings from a qualitative study remain interpretive within their specific context. The case study is intended to gain new insights into a single organisational setting, for which it can be appropriate to make recommendations on the basis of research findings. That these findings might suggest further research (see 5.3) of a different kind in a wider setting is beyond the immediate scope of this study.

3.2.4 Exploratory Research and Descriptive Research

According to Yin (1994:3-4), a case study can be exploratory, explanatory or descriptive. Exploratory study is undertaken when not much is known about the situation at hand, or when no information is available on how similar problems or research issues have been solved in the past. (Sekaran, 2000). In this instance, findings from the literature survey showed that there appears to have been very limited research reported on innovation as a project success factor (see 2.4) and no specific study appears to have been published involving the innovation strategies of project managers. Therefore, an exploratory approach was followed, as it was considered important to explore all the issues related to the study, to establish a sense of content validity for the information collected and of construct validity for the conclusions drawn.

In exploratory research, the focus is on gaining insights and familiarity with the subject area for more rigorous investigation at a later stage (Hussey & Hussey, 1997). Exploratory research is conducted into a research problem or issue when there are very few or no earlier studies to which we can refer for information about the issue or problem (Hussey & Hussey, 1997:10).
According to Berg (2001), in exploratory approaches, data collection may be undertaken before defining the research question. This research did not collect data, however, until the research questions were identified. Berg (2001) suggests, in descriptive study, a formal process should be followed from the beginning; however, such a formal process was not followed in this research to collect and confirm the content validity of the data. Instead, the design provided for a range of aspects of exploratory and descriptive studies.

The data collection for this study started with an exploratory approach and, during the confirmation stage, it moved towards a descriptive approach, to better understand the patterns emerging from the data and to make recommendations that were practical.

As Yin (1994:105) suggests, and Hussey and Hussey (1997) confirm, the original objective of the case study may not have been a descriptive one, but a descriptive approach was expected to assist in identifying potential causal links to be analysed.

In brief, this research was designed to explore two inter-related questions seeking to establish factors affecting the success of project management approaches within a single organisation. The research was designed as a qualitative case study according to the general principles outlined by Yin (1994) and expanded by Berg (2001). Arising from these principles, the unit of analysis became identified with a single section within the organization and in-depth interviewing of expert informants (Sekaran, 2000) was selected as the major data collection
3.3 Data Collection

Data sources can be primary or secondary (Sekaran, 2000). Individuals, focus groups, and a panel of respondents specifically set up by the researcher, and whose opinions may be sought on specific issues from time to time, are each examples of primary data sources.

Data can also be obtained through secondary sources such as company records or archives, government publications, industry analysis offered by the media, websites or internet. Secondary data for this research were collected through journals, books, and full-text on-line databases. Primary data were collected from organisational materials and individual interviews.

3.4 The Sample

Sample selection is important in qualitative studies as it plays a key role in determining whether the required information can actually be obtained. While sampling has been variously defined for a wide range of purposes, there is broad consensus among qualitative researchers that it involves:

the deliberate choice of a number of people, the sample, who are to provide you with data from which you will draw conclusions about some larger group, the population, whom these people represent. (Jankowicz, 1995: 155)
A sample is a selection of elements, members or units from a population and is used to make statements about the whole population. (Blaikie, 2000: 198) Supporting this, Berg (2001:30) suggests that the logic of using a sample of subjects is to make inferences about some larger population from a smaller one, the sample. Yin (1994), however, argues that generalisation is not the purpose of an exploratory study and that, in fact, exploratory studies should not be generalised.

Because the purpose of this study is the identification and the development of understanding of success factors in project development, its intention is not generalisation, a process generally agreed to be better suited to quantitative studies. (Hussey and Hussey, 1997)

3.4.1 The organisation

This research is based on the single case study of a project management group in a large multinational organization, Teleca.

3.4.1.1 Teleca: Use of a fictionalised name

The fictionalised name Teleca was used to identify the organisation studied in this research to protect the privacy of the organisation, its information and its individuals. Throughout this study, the organisation has intentionally been obscured to protect the privacy and confidentiality of the informants and of the company itself (see 3.4.1.3).

3.4.1.2 Composition of project management team
In Teleca, Project Managers were located in a single project department where their project management competencies are assessed and where project managers are trained and developed.

The role of the project manager at Teleca is to manage any given project according to identified areas of expertise and report back to the line manager. More than 80 project managers were working at Teleca at the time interviews were conducted for this study. They represented highly educated people with graduate and postgraduate qualifications and project and professional project management qualifications. There was a balanced mix of male and female project managers, representing various cultural background and they came with a range of experience levels.

Project Managers were not treated as senior managers at Teleca. They represented a level of middle to low management. The Teleca Project Organisation chart is shown in Figure 3.1.

Project Managers in the Teleca project office were trained to follow a standard project management methodology. All Project Managers were given training on how to follow this published process. Their performance was measured against the criteria given in the process. However, there were also some exceptions. This research aims to investigate the factors influencing innovation strategies of project managers in such a diverse environment.
3.4.1.3 Informed consent

The study was conducted according to the ethical codes of the university and standard ethical practices required of any reputable academic research (Kellehear, 1993).

According to Berg (2001) and Hussey & Hussey (1997), the ethical requirements for ‘informed consent’ in research require potential respondents formally providing knowing consent to participate in a research project as an exercise of their choice, free from any element of fraud, deceit, duress, or similar unfair inducement or manipulation.

Potential participants were informed in writing about the purpose of this research project (see Appendix A) and their consent was collected in writing before the interviews, ensuring that the ethical requirements of the study for ‘informed consent’ were addressed.
Managing Director Teleca

Project Office Manager

(Program Managers / Market Project Managers)

Project Manager

Project Team Members

General Manager

Line Managers

3.4.1.4 Confidentiality and privacy

Berg (2001) suggests that confidentiality is an active attempt to remove from the research records any element that might indicate the subjects’ identities. This was initially achieved in this study by allocating respondents a coded identification number during the data analysis phase of the study. This procedure, however, tended to create a sense of disembodied or dehumanised respondents when reporting the findings. To maintain confidentiality of the information at the publication stage, therefore, coded informants were assigned fictionalised names and these are used consistently throughout this thesis.

Figure 3.1: The organisational structure of Teleca
As previously described, individual agreements were made with each respondent that confidentiality was assured.

On the other hand, privacy means that the subjects remain nameless. This was achieved, as indicated, by assigning fictional names to each respondent.

### 3.4.2 Non-probability sampling

There are two common ways in which sampling can be done: nonprobability sampling or probability sampling.

The difference between probability and non-probability sampling is that,

> in non-probability sampling designs, the element in the population have no probabilities attached to their being chosen as sample subjects. (Sekaran, 2000:277)

whereas

Non-probability sampling methods have the advantage of flexibility, and are particularly useful in the first, familiarization cycle of issues apparently under investigation. They afford a better opportunity for collaboration with respondents than probability methods, and allow great scope for inference and judgement in interpreting results. (Jankowicz, 1995:158).

Two non-probability sampling strategies are commonly applied.

Accidental sampling involves the choice of a sample from the population whose views you want to discover, on the basis of convenience only (Jankowicz, 1995:156).
Quota sampling ensures that certain groups are adequately represented in the study through the assignment of a quota (Sekaran, 2000:279).

The main drawback with quota sampling is that, while it splits the sample into subgroups to reflect diversity in the proportion in which it occurs in population, it necessarily:

requires a sample group of sufficient size to be partitioned meaningfully and then doesn’t give each person in the population an equal chance of being selected into the sample. (Jankowicz, 1995:158)

For the purpose of this case study research, nonprobability-sampling techniques were preferred over probability sampling on the basis of both the exploratory intention of the study and the necessarily small size of the available sample (see Figure 3.2).

In selecting participants for this research a ‘purposeful, intentional, and stratified’ key informant sample of involved and experienced participants was selected to represent the maximum variation and important knowledge sources likely to be identifiable within the total group.

3.4.3 Purposive sample of key informants

For the purpose of this study, Purposive Sampling was selected as the most appropriate of the nonprobability sampling techniques because techniques like accidental and quota sampling were considered unlikely to generate the qualitative data required for the study at the levels it was required.
Instead, experts from three different groups were used in this purposive sample. These include project managers, line managers and customers.

In detail, the sample consisted of 20 Project Team members – 12 Project Managers and 8 line managers of Teleca and its 8 customers outside Teleca. Project Managers represent a balanced mix of the project organisation (see Figure 3.2); line managers and the customers were necessarily selected opportunistically on the basis of their interaction with the project organisation at Teleca (see Table 3.1)

![Figure 3.2 Diversity of the Project Management Sample](image)

Twelve Project Managers, purposively selected with the help of project office management, represented the sample. The experience of the project managers ranged from less than five years experience to over 15 years. By chance, six project managers came with more than five years experience and six came with less than five years of experience. As a result, they happened to represent a balanced mix of experience levels. The sample, nevertheless, represented a diverse set of project managers. A combination of male and female, a combination of
less experienced and more experienced, project managers with
diverse cultural background (See Figure 3.2).

The respondents have been identified with fictionalised names
(See Table 3.1). The names were made alphabetical and do
not necessarily imply gender, ethnic background, or experience
levels.

Purposive sampling involves choosing people whose views are
relevant to an issue, in the judgement of the researcher and/or
her collaborators, - or whose views are seen to be particularly
worth obtaining and typifying important varieties of viewpoint
(Jankowicz, 1995, p.157). Equally importantly, however,
purposive sampling introduces a strong potential for bias
across the sample (for further discussion of this issue, see 3.5).

<table>
<thead>
<tr>
<th>12 Project Managers</th>
<th>8 Line Managers</th>
<th>8 Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrea</td>
<td>Andrew</td>
<td>Arnold</td>
</tr>
<tr>
<td>Barry</td>
<td>Bettie</td>
<td>Bella</td>
</tr>
<tr>
<td>Carla</td>
<td>Carl</td>
<td>Chris</td>
</tr>
<tr>
<td>Dominic</td>
<td>Damien</td>
<td>Dianne</td>
</tr>
<tr>
<td>Ed</td>
<td>Elle</td>
<td>Emma</td>
</tr>
<tr>
<td>Frank</td>
<td>Fiona</td>
<td>Fred</td>
</tr>
<tr>
<td>Geoff</td>
<td>Gary</td>
<td>George</td>
</tr>
<tr>
<td>Hong</td>
<td>Hussein</td>
<td>Harry</td>
</tr>
<tr>
<td>Iman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 3.1: The Sample*
Jankowicz (1995:157) summarises several purposive sampling techniques identified by Read, Reeves and Harper in 1981:

- Key informant techniques – by which people with specialized knowledge about the issue in question are selected for interview;
- Taking ‘Slices through the organization’- selects people because of the positions they occupy in the organization. In this research people working within interrelated business functions and understand the activities performed by each other were selected purposefully to get the best possible answers;
- ‘Snowball’ sampling, by which new respondents are selected following the recommendations of people to whom you’ve already put your questions; as you proceed, the number of respondents grows like snowball.

This research has used a key informant technique and the approach of ‘taking slices through the organisation’ to represent different parties involved in projects. The ‘snowball sampling’ technique was not used in this research as it was not seen to be useful when the researcher, as a participant in the organisation under study, already knew who could be approached.

3.5 Bias in respondent selection

When developing purposive sampling, Berg (2001:32) suggests that, “Researchers use their special knowledge or expertise about some groups to select subjects who represent the population”.

PAGE 75
As a Teleca project manager, I had knowledge of the people in the organisation and was well aware of their capabilities. These factors helped in identifying the key informants required for the research. However, this ‘insider knowledge’ needed to be carefully handled to avoid bias.

As suggested by Jankowicz (1995; 157), to ensure that the pitfalls of intentionally selecting participants rather than randomly selecting them is avoided, participants were asked about their experience and knowledge in the field, and their views on what others were thinking to assess how typical they might be, compared with others equally well known, representative and able.

The selected key informant sample represents a mix of project managers and team members who were expected to provide the insightful information required for this research and who, according to their peers, fairly represented every different kind of project management used in the organization (see Figure 3.2 for reference).

3.6 Interview design

Rather than using observation and questionnaire techniques (Sekaran, 2000:225), key-informant interviews were designed to gather primary data for this research. Although a questionnaire approach to data collection was considered, it was rejected as being more appropriate to a quantitative survey across a large sample. Additionally, it was expected that a survey questionnaire approach would require follow-up interviews to confirm and extend personal experiential data that could be collected directly in a single initial interview with a relatively small sample. On the other hand, case study
interviews, with semi-structured, open-ended questions helped in this research to gain insights into the situation during the individual key informant interviews (Hussey and Hussey, 1997).

As suggested by Yin (1994:80), interviews were selected to gather primary data because they are targeted to focus directly on the case study topic, are insightful and may provide causal inferences. However, the weaknesses of interviews summarised by Yin (1994) were also noted. These weaknesses include poorly constructed questions leading to response bias, inaccuracies, reflexivity, and interviewees giving what they believe the interviewer wants to hear. To avoid these disadvantages, cross-checking of the answers was undertaken using three types of groups within the same case study; the project managers, managers and the customers (see Figure 3.3).

3.6.1 Interview location

Face-to-face interviews with key informants were conducted at the Teleca worksite for Teleca employees and at project worksites for non-Teleca informants to reduce any sense of anxiety introduced by the interview location itself (Kellehear 1993). Interviews were conducted with the project managers, customers and line managers of Teleca to understand the factors influencing innovation strategies of project managers.

3.6.2 Interview duration

Interviews were planned for completion within 60 to 90 minutes with the 28 selected Project Team members (see Table 3.1), to ensure respondents could be available for a reasonable time
that did not take them away from work. It was also expected
that this time period would give enough time for participants to
talk freely about their ideas and experiences.

3.6.3 Interview Structure

Interviews can be either structured, unstructured or semi –
structured. In qualitative case study research, semi-structured
interviews are preferred because the largely open discussion
helps in gathering data. According to Jankowicz (1995:195),
semi-structured interviews ‘involve asking questions whose
content and sequence aren’t fully specified in advanced’. This
gives participants an opportunity to talk freely about the issues
at any time during the discussion. Interviews undertaken for
this study were semi-structured and were designed to
encourage informal discussions between the participant and
the interviewer. (See Appendix B for Indicative Interview
Questions).

Interview questions can be open ended or closed, based on the
information that is expected. In a qualitative study, open-ended
questions are frequently used because respondents generally
feel encouraged to answer in their own words and the data
analysis is likely to be directed towards exploratory findings (for
previous discussion, see section 3.2.4). The semi-structured
and open ended interview structure adopted for this study was
expected to provide a large volume of rich, fertile, data to
address the research questions.

Participants were encouraged to talk freely and provide their
ideas on different issues of project management and project
success, to ensure all the relevant information was collected.
3.7 Structure Used for Collecting Data

This research has used a qualitative case study research design to answer the research questions specified in 3.1. The case study was conducted at Teleca (see 3.4.1), using a non-probability (see 3.4.2), purposive (see 3.4.3) sample of 12 Project Managers, 8 Line Managers and 8 Teleca Customers.

Key informant interviews were used to collect the primary data during this study. Participants were encouraged to talk freely about their ideas on the factors influencing innovation strategies in projects, during the semi-structured (see 3.6) open-ended interviews (See indicative questionnaires - Appendix B).

A second source of primary data, organisational publications, was collected for content analysis (see 2.6).

Secondary data was collected through review of available literature on the subject, and the related disciplines. As this study was designed as an exploratory case study (see 3.2.3), literature related to the field was reviewed and grouped to assist in understanding innovation strategies in projects, using a modified form of schematic content analysis (see 3.8.1).

During this analysis, the following categories were used in summarising, and organising data collected during the literature review (See Appendix C).

1. Factors influencing project success
2. The role of innovation in projects making it a success
3. Individual and organisational factors influencing innovation in projects
Primary data collected through the key-informant interviews and organisational publications were organised in a similar manner.

Teleca’s support was available during the research over 2.5 years, and the company expects to use the recommendations from this research to answer some of the questions their project organisation has identified over an extended time.

3.8 Analysing Case Study Data

Yin (1994) suggests that the analysis of case study evidence is one of the least developed and most difficult aspects of doing case study. He summarises analytic techniques described by Miles and Huberman in 1984, as an approach to data analysis in case studies. According to this approach, various analytic techniques can be used, including:

(1) Putting information into different arrays
(2) Making a matrix of categories and placing the evidence within such categories
(3) Creating data displays- flowcharts and other devices- for examining the data
(4) Tabulating the frequency of different events
(5) Examining the complexity of such tabulations and their relationships by calculating second-order numbers such as means and variances
(6) Putting information in chronological order or using some other temporal scheme.

While much of Yin’s data management appears to be derived from, and to support, quantitative data manipulation, this study
has not used any forms of quantitative tabulations as it has been based on the collection and analysis of qualitative data. As far as grouping and categorisation have been useful in differentiating similarities and differences within the data, however, each of the identified techniques has been applied. This approach is similar to the content analysis approach recommended by Jankowicz (1995: 207) and discussed in more detail later (see 3.8.1).

As Ghauri, et al suggest, (1995: 95-96), one major problem in analysing qualitative data is that, on one hand, the number of observations is low and, on the other hand, the information on the case or cases is so in-depth that it is very easy for the researcher to be drawn into the sheer volume of cases. It is often difficult, they argue, for inexperienced researchers to filter or discard irrelevant data before analysis. With qualitative methods, the analysis is further complicated because data collection and analysis are often done simultaneously.

As a result, the research problem is sometimes even formulated or reformulated at the same time. This often leads to new questions and the need for a new data collection. The result may be that, in practice, there is no clear and definite phase of data analysis. The difficulty of separating data gathering and analysis in this study resulted in concurrent applications of modified Content Analytical (3.8.1) and Grounded Theory (3.8.2) approaches.

3.8.1 Content Analysis

According to Jankowicz (1995: 207) Content Analysis involves perceiving, summarising and writing. Perceiving involves:

- preparation- to identify the content-unit of analysis
• categorizing- using a set of categories taken from the literature, or reading over your written manuscript
• coding – assigning each utterance to one and only one category
• tabulating- counting the number of utterance under each category
• illustrating – in which you present the categories and list the assertion under them.

Analysing primary data involved going through the organisational publications and sorting them into thematic categories, the first step of the content analysis. This process started with observing and analysing the content of organisational publications, letters, documents, intranet and conversations. When the data had been sorted into different arrays, the next step was to put them in to categories.

A matrix of categories was established and data was organised into these categories (see Appendix C). Data collected through the content analysis of organisational publications was summarised and the findings presented in Chapter 2.6. This content analysis of organisational publications did not tabulate the frequency of different events, as it was not required. The content analysis of secondary data was undertaken in a similar manner.

Some tabulation techniques were used to identify the patterns within the primary interview data as the research provided a large amount of qualitative data, to answer the research question. Since little research on innovation in project management could be identified (see 2.4), the major source of data for this study was the interviews.
Interview data was organised into different arrays, built into a matrix of categories with supporting evidence, and organised into tables and figures for presentation in an organised manner (See Chapter 4).

Hussey & Hussey (1997: 250) contend that content analysis represent a formal approach to qualitative data analysis. They suggest the first stage of the analysis is sampling, and suggest, If a large volume of written, oral or visual research data exists, a decision must be made on the rationale for extracting a sample. Where the material is less substantial, it may be possible to analyse all of it (Hussey & Hussey, 1997: 250).

de Araugo (1999) has used a similar approach arguing that the volume of data has a substantial impact on the selection of an optimal analytical approach. Drawing attention to the need to discard almost forty per cent of her data if she adhered to a rigid case study methodology, de Araugo (1999) confirms what Hussey & Hussey identify as a significant drawback to content analysis with a small-scale study:

To record only the words or phrases you consider are particular in the area of interest, may mean that you discard large amounts of data which could help you understand the phenomenon you are studying more thoroughly at a deeper level (Hussey & Hussey 1997:252).

Jankowicz (1995) expands on this concern while emphasising its exploratory capacity:
Its purpose is to describe systematically the content of your respondents’ utterances, and classify the various meanings expressed in the material you’ve recorded… content analysis is a powerful means for familiarizing yourself with what’s there (Jankowicz 1995:206).

As Ghauri, et al (1995) argue,

To analyse data we have to code them so that they can be broken down, conceptualised, put together and presented in an understandable manner
(Ghauri, et al, 1995, p.96)

They suggest that qualitative data can be used in analysis and interpretation, irrespective of whether it has been quantified or not. This type of data, as Ghauri, et al, (1995) suggest, provides new integrative insights due the understanding of a phenomenon.

In this research, the content analytical approach was modified to categorize and code data into similar patterns [or themes (Aronson, 1994)] for analysis. To understand the patterns of data collected in this study, however, minimal use of coding and tabulating was applied to divide responses into categories in a logical manner to understand the patterns exists in the data collected.

3.8.2 Grounded Theory Approaches

Strauss & Corbin (1998) describe grounded theory as one way of doing qualitative analysis. It can also be described as a research strategy on its own. In this study, some concepts of grounded theory have been used to offer insights into the way the data might be interpreted. They suggest that even if it is
used to build theory, it can be useful for other purposes because grounded theory is,

theory that was derived from data, systematically gathered and analysed through the research process” Strauss & Corbin (1998:12).

(Strauss & Corbin, 1998) further suggest that, in this method, data collection, analysis, and eventually theory stand in close relationship to one another, which has also been observed during this research.

In an insightful summary of the grounded theory first identified by Glaser and Strauss in 1967, White (2000) observes that,

… qualitative research can be very different in that, at the start no observable patterns in the data may be apparent. (White 2000:110)

This apparently aimless beginning, White suggests, is because qualitative study is a descriptive process. But he argues, qualitative research should not simply describe a situation, it should seek explanations and analysis at all levels. A search should be made for generalisations or theories to explain and to understand the topics being investigated. In this present study, even though it was recognised that the research design could not be expected to provide generalisations, grounded theory was expected to assist in the process of identifying new knowledge about project management, by exploring the meaning and context of the data.

Strauss & Corbin (1998) argue that,
a researcher does not begin a project with a preconceived theory in mind, unless the purpose is to elaborate and extend that theory. Rather, the researcher begins with an area of study and allows the theory to emerge from the data. Theory derived from data is more likely to resemble the ‘reality’ than is theory derived by putting together a series of concepts based on experience or solely through speculation. Grounded theories, because they are drawn from data, are likely to offer insight, enhance understanding, and provide meaningful guide to action (Strauss & Corbin, 1998:12).

White (2000) suggests a grounded theory approach to analysis, which has been useful in analysing and evaluating data in this research. The scheme involves familiarisation with material, reflection on whether the research data support or challenge existing knowledge, or reflection on whether it answers previously unanswered questions. After this, conceptualisation of the patterns and concepts emerging from the data can be used to identify and catalogue concepts before, finally, linking ideas together and starting to build theory. In this case, even when the theories are incomplete, linked ideas will help explore the meanings and context of data collected and will help with the data evaluation process. This study did not aim to build theory, however the use of grounded theory concepts helped in developing the recommendations.

3.9 Assessment within the Research Design

According to Bunker, Pearlson & Schultz (1975: 19), there are three major criteria that need to be taken into consideration in assessing any research design:
• internal validity, external validity and reliability. Further, they suggest that: internal validity addresses the question: Is this study going to produce clear results?
• external validity answers the question: Will the results be relevant to other situations?
• reliability addresses the question: If we did this study again with a different group of subjects, would we get the same results?

3.9.1 Internal and external validity

McNeil (1990) argues that validity:

... refers to the problem of whether the data collected is a true picture of what is being studied. (McNeil, 1990:15)

More detailed commentaries on research methodology have identified a range of elements contributing specifically to internal validity. Two of these are fundamental for the small-scale qualitative researcher.

Agreement among the informants that the findings drawn from their interview data represents an accurate picture of project management within Teleca, as they understand it, suggests that this study offers strong internal validity, that it provides an accurate picture of what is happening in the organisation. Whether this research is externally valid, whether the results will be relevant to other situations, is a concern beyond the exploratory intention of this present study. It is a limitation that was identified when designing the case study research (see 3.2.3) and where the decision to explore the issues in detail rather than making generalisations was discussed. As a consequence, external validity is not a consideration in this research design.
3.9.2 Content and construct validity

Content validity is concerned with whether data provides answers to the questions specified in the research. In this case, where data is agreed by the informants to provide an accurate picture of what is actually happening in the organisation, it is argued that the study offers appropriate content validity.

Project Managers at Teleca were interviewed to understand something common to everybody, the factors influencing innovation strategies in their project's success. Their responses therefore, tended to demonstrate elements common to their experience, ensuring its content validity (See 4.3).

Confirming Trochim's (2001) perception of construct validity, McKenzie (2002) argues that construct validity refers to the degree to which inferences can legitimately be made between the operationalisations in one’s own study and the theoretical constructs on which those operationalisations were based.

Yin (1994) suggested using multiple sources of evidence as one way to ensure construct validity. Yin's approach was applied in this study at all available opportunities. This was done by asking similar interviews questions from all three parties to see the similarities and differences.

Findings from the responses were analysed using the content analysis techniques to see similar patterns in these multiple sources of evidence. The commonality in responses between project managers, line managers and customers support the view that construct validity was met.
3.9.3 Reliability

According to McNeil (1990), reliability means that anybody else using the same method, or the same person using it another time, will establish the same results if the method is reliable. In this research, it is expected that further research will be required (see Chapter 5.3) to prove its reliability, as this is a limitation researchers face in many qualitative approaches. This case study research represents yet another example.

3.10 Chapter Conclusion

This chapter has described and discussed the research design of the project and the methodology used to investigate the factors influencing the innovation strategies of project managers at Teleca. The chapter has reviewed a range of relevant research designs and assessed a number of methodological possibilities for researching the question. It has provided substantial reasons for using a qualitative, exploratory case study approach with some descriptive aspects, and for using case study interviews for data collection and validation. The chapter has then reviewed the use of a modified content analysis and grounded theory approach to analyse the case study data gathered from both primary and secondary sources. (see figure 3.4 below)

Having established an appropriate research design and methodology, the chapter has described the organisation selected for the study, the population available to inform the research and the purposive informant sample selected. Finally, the chapter has described the tools chosen to analyse the data and suggested how this data analysis meets the demands applied to qualitative case study research designs to establish their academic rigour.
The following chapter (Chapter 4) provides an analysis of the findings generated at each stage in the data collection, assesses the extent to which these findings confirm previously accepted research in the fields of project management and the introduction of innovation and discusses their emerging reliability and validity. The chapter then identifies factors that appear to support successful innovation in project management and suggests a preliminary grouping of these factors according to their apparent source and workplace practices that confirm their stability.

Figure 3.4: Research Design: Factors influencing innovation strategies of project managers
Chapter 4 Data Analysis

To understand the critical factors influencing innovation strategies of Teleca, this research has used the range of data collection techniques discussed in the methodology chapter. This chapter provides an analysis of the data collected during the study.

As previously indicated (see 1.3), Teleca is a large multinational company that relies heavily on established processes and practices for its continuing success. Findings from the content analysis and case study interviews, however, indicate that Teleca is trying, to a limited extent, to be innovative in different parts of the organization. More recently, it appears, the organization has been trying to encourage innovation as part of its organisational strategy.

The findings reported in this chapter suggest that innovation has not, however, been widely encouraged or acknowledged in the areas of project management or project organisation. They also show that while some project managers have been innovative in managing their projects, others have been less so. In closing, this chapter identifies key factors influencing the role innovation appears to play in successful project completion, and what influence the implementation of innovative strategies has in successful project completion.

4.1 The background

As established in the previous chapter (see 3.8.1) organisational publications on Project Management processes and structures, the company Operations Binder, the Strategic plan and other related publications were reviewed to better
understand the current structure of the company and the organisational environment. This survey of company publications was completed to establish the processes, procedures and rhetoric currently available in Teleca to promote a culture that supports innovation.

Most prominently, available organisational publications suggest that the company uses a standardised approach to managing projects globally. These projects range from commercial, technical, process improvement, and consulting, to R & D (research and development) in their nature. As each project is different, however, it appears to be immediately questionable whether the expected globally common methodology is applicable to each individual project.

4.2 The findings

4.2.1 Document analysis

Innovation, according to the documentation available on the Teleca website, is strongly encouraged in the organization and a section of the web site is, in fact, dedicated to innovations. Innovation process charts, similarly, are distributed among employees where ideas and suggestions are apparently encouraged (see Figure 4.1 for Teleca Innovation Process and refer to 2.6 for further discussion).

Figure 4.1: Teleca Innovation Process (Source: Teleca Intranet)
As previously indicated, the project management methodology required by Teleca is very detailed. It includes templates for progress reporting, financial reporting, project tracking and monitoring, project initiating, planning, executing, controlling and closing. This same level of prescription extends to all other details of a project. Process Training materials, brochures, banners and a user-friendly web site, are freely available to assist project teams in familiarizing themselves with the process.

Despite all this published detail, however, it appeared that some respondents, at least, have been able to customise the established processes to their projects.

I don’t follow a standard process … there are standard documents to plan a project and report progress but that doesn’t constitute a process. The whole reason for having a Project Manager is to have someone who can adapt to the unique situation of each project. Process should be customised according to the needs of each project. (Dominic)

4.2.2 Career paths in project management

Project Management was seen as a middle management role in Teleca. Its purpose was, as described in the strategic plan, to support organisational growth. Project managers, coordinators, and project administrators were given a copy of their role descriptions and this was available for download in the Operations Binder. It described the project managers’ and team members’ roles, responsibilities, remunerations, career paths and training and development requirements.
The career path of a Project Manager, however, was not linked into any other management pathways. There was no clear connection between Project Management and Teleca's published management roles (see Figure 3.1). As an example, at the highest level in Project management, there remains no clearly defined path to move into the senior management or executive management teams. Superficially at least, this seemed to represent a discouragement for good people considering a career in project management.

Despite an apparent lack of career path, the Teleca Project Management Competency Development Program (2000) shows that Project Managers are categorised as Junior Project Managers, Senior Project Managers and Program Managers. The specified training and development programmes for these personnel involve extensive project management and technical training, and only one basic training programme in management itself. As might be expected, this program is not linked to the executive succession planning strategy of the organisation.

Under these circumstances, it seemed more likely that ambitious staff at Teleca would move into alternative management positions where they might become part of succession planning for the next management level.

Despite this apparent lack of career pathway, Teleca's strategic plan shows that project management is considered as a key enabler for organisational growth. Further, it indicates that the organisation would take all actions required to develop project management within the organization.

Despite these apparent anomalies in the rhetoric of promotional opportunity, the importance of successful project management
appears to be well recognised by Teleca. The company appears to be poised to learn more about how they might make their projects successful, and what changes will be required to achieve this success. Their willingness to support this present study confirms that desire.

4.3 Analysis of interview data

This section provides an analysis of the data collected from semi-structured interviews (see 3.6.3) and offers a preliminary discussion of those findings. The factors apparently influencing project success are discussed in 4.3.1 before the role played by innovation as a potentially key factor is discussed in 4.3.2. Section 4.3.3 discusses the factors that appear to influence the implementation of innovation strategies at Teleca.

Responses received from the line managers at Teleca verified the data collected from the project managers, as they were directly linked or consistent in most instances. Line managers interviewed in this study played a range of different types of roles in the organisation. Some were direct line managers for the project managers, Arnold, Chris, Emma and Fred (as identified in fictionalised names, in alphabetical order: see Table 3.1) played these roles.

Other line managers Bella, Dianne, George and Harry (see table 3.1) acted as project sponsors, and as controllers within the matrix of the organisational setting. They were responsible for recruiting and developing project managers and for all other line-related functions including responsibility for project financial controls and for making sure that project managers delivered successful projects.
Customers, fictionally identified as Andrew, Bettie, Carl, Damien, Elle, Fiona, Garry, Hussein for the purpose of this analysis (see Table 3.1). were questioned to provide parallel information for comparison with data already collected from the project managers and line managers. On the other hand, as customers are not working under the same organisational setting, they offered triangulation for the maintenance of validity through third party feedback. As previously discussed, a purposive sample of 8 customers from Australia and Asia Pacific, some of whom had been with Teleca in excess of 8 years and some who were relatively new (less than two years) were selected as informants to this study.

4.3.1 Factors influencing project success

Existing literature has suggested that many factors influence the success of projects. Different people, however, see project success in different ways, and it was important to understand what motivates project managers towards success at Teleca. Project Managers were asked for the criteria they applied to measure their performance in projects. Specifically, they were encouraged to identify individual factors relating to their success or failure, before discussing technical aspects of project success and commonly agreed success factors.

As a project manager Dominic suggests that, ‘projects seldom fail, the problem lies in the definition of failure’. Another project manager, Ed believes that “projects fail because of the organization’s ambition to get the project and deliver it at any cost”. Customers, however, did not necessarily agree:
Even when the success factors were not present, project managers sometimes still managed to deliver. (Carl)

Generally, customers were happier with project success rates than line managers who tended to be far less confident what constituted success within their own organisation. Less than half of the line managers in the group saw their projects as being mainly successful. Only two believed that they achieved success rates as high as 70 to 80 per cent. Importantly however, despite the detail published for the completion of a project, Teleca did not have a single standard measure to rate success. In the face of this lack of criteria, line managers appear to have developed their own interpretations of success and to draw some statistics from customer satisfaction survey to measure project success.

Sometimes the organization can see the project as a failure when measuring it against apparently standard measurements when, on the other hand, the customer can be happy because they have received something innovative and different. (Dominic)

Whereas,

Customers are happy with project managers who are decisive. We tend to appreciate their work even when small things go wrong. (Carl)

In general, customers appear to report that projects are successful when they are happy with the way they were run.

All line managers, however, indicated that the success of a project is achieved by delivering it according to the plan. These plans generally included meeting traditionally accepted time,
budget, scope, quality, and requirement specifications (see 2.1).

It is important delivering what’s been committed. You've got to meet goals and objectives, as well as customer and stakeholder expectations. (George)

Project managers, once again, confirmed the meeting of customer and stakeholder expectations as indicators for the success of a project because, “well managed projects are successful projects” (CHRIS). Additionally, the importance of happy customers and happy stakeholders in successful projects was highlighted by the more experienced project managers.

Supporting an apparently circular view, project managers commonly agreed that, “if a project is managed smoothly from the beginning to the end, without any major problems, it is successful” (Bella). This rather more diffuse definition of project success was invariably expanded in more detail (see Table 4.1) where project managers could identify the well-managed project as,

... achieving a balanced approach throughout, so that managing projects successfully involves effective change management. (Ed)

Apart from expressing similar views to their customers about a successful project, Line Managers also identified a small range of additional criteria which remained unidentified by project managers. One line manager proposed that,
A project managed by a competent project manager who can run projects on his own, is a characteristic of a successful project. (Andrew)

Few, however, suggested that project success was about customer acceptance though some argued that, “projects meeting organisational needs are successful projects” (Frank). In general, line managers reported that project managers need to think about organisational needs, and customer acceptance of a project rather than just delivering what they are asked to do according to the plans.

Some project managers seem to act as if there isn’t really a customer that exists. They just do a job to some set of plans that the customer doesn’t even need to know about. (Ed)

The findings from this study indicate that Line managers confidently believe that their subordinates, the project managers, must recognise the importance of managing projects as planned and making customer and stakeholders happy. It is far less obvious that they have really thought about the published organisational needs, future directions or future business expected to flow from successful completion of the project.

4.3.2 Factors motivating project managers

Without attempting to develop a cohesive discussion of factors motivating project managers towards successful project completion at this point, the identified factors that motivated project managers to perform better in their roles are summarised below.
4.3.2.1 Variety

The majority of project managers reported that they most enjoyed commercial projects providing total solutions. They gained most satisfaction from turnkey infrastructure development projects with full responsibility.

Ed and Kathy in particular enjoyed variety in project size while suggesting that they prefer managing complexity.

Several PM’s reported enjoying projects connected with new technology, for their variety, rather than managing similar projects for longer times.

4.3.2.2 Challenges in project

Project Managers suggested that commercial and customer projects were satisfying for their challenges. New challenges were a key motivational factor for many PM’s, regardless of project size.

Some PM’s suggested that they enjoy small projects because of the challenges to meet tight deadlines, urgency and critical nature.

I enjoy small, urgent and important projects towards a deadline that cannot be changed and negotiated. (Carla)
I enjoy the projects interfacing to the customer that are dynamic, large in size and change often ... It’s great when they are challenging and fast phase projects with new experiences and positive feedback. (Geoff)

4.3.2.3 Self satisfaction

Self-satisfaction with the final delivery was a reason some PM’s enjoyed customer projects. Ed particularly enjoys infrastructure projects because of the self-satisfaction he got through tangible results.

in these projects you can have some sense of achievement when you can physically see what you have delivered. (Ed)

4.3.2.4 Reduced bureaucracy

Several PM's reported a specific dislike for large projects because of the bureaucracy and long times to completion. As one senior project manager observed,

there is a huge amount of bureaucracy in the name of the “following the process” but in reality it’s all lip service. (Dominic)

4.3.2.5 Teamwork

The majority of project managers reported that their key motivational factor was working in teams. They said good teams and teamwork motivated them and helped them perform
better, “…working in teams and being with people motivates me… (Andrea)

4.3.2.6 Customer/Client contact

Project managers, were generally strongly motivated by customer/ client contacts and expressed a sense of accountability towards their customer, as well as making customer satisfied and happy. Frank observed that he prefers projects with a strong interfacing to the customer. Similarly, Andrea indicated that working with customers and satisfying the customer were some of her key motivating factors. Geoff also says that he enjoys being customer focused.

On more expansive scales, Ed indicated his enjoyment for enjoyed working with internal and external people while Barry, who manages turn-key projects for several customers in the Asia-Pacific region, considered that dealing with customers was his key motivational factor.

4.3.2.7 Change

Change in types of projects they manage, change in the project environment, and changes in the project, were key motivational factors for most project managers.

A Project will always change as our understanding increases. The Project Manager need to impose structure on to the chaos of change, because people can’t work in
A project is a balancing act where you are juggling costs, delays, people, functionality to arrive at the deliverables within the scope. A successful project is where you navigate the major obstacles and still deliver within the scope. (Dominic)

4.3.2.8 New experiences and learning

Project Managers all reported that they enjoy getting new experiences and gaining new learning from their projects.

Frank and Hong specifically identified new learnings and new experiences as the key to their personal motivation on the job.

4.3.2.9 Successful completion

As might be hoped and expected, satisfaction in seeing the end results from a project was a strong motivating factor. Teleca PM’s have recognised themselves as result oriented. As a consequence, the quality of what Ed identified as “Tangible results” were highly motivating for all of the respondents to this study.
4.3.2.10 Fun

Without exactly identifying what this meant, PM’s suggested the elements of fun involved in the projects as motivating them to perform better.

Having identified working in a team as motivational, Andrea, in particular, emphasized the importance of “having fun at work”.

Ensuring there is an element of fun at work for team members is a key motivational factor. (Andrea)

4.3.2.11 Reward and recognition

While few directly identified reward and recognition as a motivational factor, Carla reported it directly while several other informants, speaking in more general terms appeared to be assuming rewards and recognition as a dimension of their job satisfaction.

4.3.2.12 Innovation and change

The majority of the group highlighted innovation as a key motivating factor. However, the majority of project managers in this organisation welcome innovation only if it comes to them.
Leo, a senior project manager who enjoys managing large and complex projects insists that,

Freedom is not really given [in projects]. I make my own initiatives whenever required. I don’t expect approval for each strategy I deploy in my projects to make it a success. (Leo)

Despite the apparent contradiction, however, Leo affirms that “project managers are there to innovate”.

Frank giving the reasons for why he thinks innovation helps in making projects successful, says, “innovation allows you to handle unexpected changes”.

Suggesting, on the other hand, that the definition of the term may vary between PMs, Andrea says that, “it’s not innovation, it’s the motivating which make things happen.”

The Teleca Project Managers involved in this study argued that the 12 factors identified formed a powerful basis for improved project performance.

In summary most project managers still see that time, cost and quality performance are the key criteria for better project performance. Therefore, the idea that balancing the trade-offs between these competing objectives is confirmed again during this research as a key criterion for project success.
The acceptance that innovation apparently plays a substantial role in successful decision-making has been highlighted by many project managers in the organization. However, whether it is a ‘must’ in every project run by the organisation is still a question.

Based on the data analysed in this research, it seems clear that fostering an innovative culture in project organisations to support projects which require high level of innovation, while at the same time supporting all the other projects so that they may gain some sort of benefits by doing things differently – is both a wise and, at Teleca, an emerging approach.

While it might be argued that there is some overlap between the 12 motivating factors identified by the respondents to this study, and even that there may be some variation in the definitions used by respondents as a basis for their replies, it is clear that the Project Managers at Teleca have a strong agreement about what has motivated them to perform better in their roles, and that this has led to their projects being successful. As a result, they considered these to be the main criteria for better project performance.

### 4.3.3 Project success factors

Following their identification of factors influencing *project management performance*, the respondents to the study were asked what they understand by project success and what they considered were the factors influencing that success. In agreement with previously reported research (see 2.1), project
managers at Teleca suggested that there are many factors influencing the success and failure of projects. Importantly, however, Line Managers and customers had a similar understanding of the factors identified by project managers as leading to success. Table 4.1 categorises the project success factors identified by the respondents to this study as either individual or organisational concerns.

Andrea confirms that, in her projects,

All my team members understand the status of the project through our constant communication and they all know that I want them to do the best they can. (Andrea)

Everyone expects to meet the objectives that are agreed by both customer and PM on time, budget, and successful completion. However, some respondents believe that a successful project is one where all documents are available and that administrative aspects are being monitored and handled accurately. Extending on what motivates her as a project manager, Andrea maintains that,

Having fun is the major factor contributing to the success of projects. When there is fun, people bond and hence want a successful outcome so there has to be clear and constant communication of the project status. (Andrea)

Dominic discussing the project success factors says,

One of the major factors is the authority to act fully within the scope of the project. Sponsors must also think hard about their priorities; and balancing the trade-offs between cost, quality, functionality or time. If they identify the main priority and fulfil it,
the project is a success. Many projects take the initial requirements at face-value and skip the most important phase of a project requirements analysis. Requirements need to be graded as to mandatory, desirable, or optional, so there is more room to manoeuvre.

Ed identifies project success as goal fulfilment in the eyes of the customer and sponsor, and the satisfaction of all key stakeholders.

Good change control, good financial control, base lining of requirements, risk management, accurate budgeting and cost tracking, and clear roles and responsibility are key contributors to project success (Ed)

Ed’s view is supported by Frank, who says,

[The] project is successful when all project goals and objectives area achieved, and customers and stakeholders are satisfied with the final outcome. (Frank)

Less experienced project managers invariably considered project success in terms of budget, quality and time efficiency, and meeting customer and stakeholder expectations.

Frank maintains, however, that a successful project is one that comes in on budget, on time and meeting the customer expectations. Geoff adds, project is successful when it is achieved with as little headache as possible while Iman believes project success is about meeting all customer expectations, budget, time and plan “… with manageable risks”. For, Jack and Leo, its all about making customers and stakeholders happy, a view which Kathy confirms.
### Project Success Factors

<table>
<thead>
<tr>
<th>Individual Factors</th>
<th>Organisational Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Planning, and delivering to plan. All respondents agreed that good planning is a key for the success of projects. Planning projects well, and delivering the project according to the plan was seen as very important.</td>
<td>Stakeholder and management dedication and commitment. Project managers, line managers and customers all identified stakeholder management as the major factor for project success. They believed if stakeholders are not happy, the project can never be a success.</td>
</tr>
<tr>
<td>Good Communication All the parties saw proper, regular and honest communication as a success factor.</td>
<td></td>
</tr>
<tr>
<td>Working in Teams Project Managers strongly believed that good teamwork led to the success of projects. Cooperating well in teams and working together to achieve the set goals were regarded as highly important.</td>
<td>Authority for making decisions Project managers suggested that they were not delegated enough authority to make timely on-site decisions. Customers strongly supported this observation.</td>
</tr>
<tr>
<td>Clear understanding and managing of client requirements Clearly defined or clear understanding of the client/customer requirements and the scope of the project, and aligning the goals and objectives to meet these requirements were a key success factors agreed by all respondents.</td>
<td>Training and Development Proper training and development programs were seen as a factor influencing success of projects. Project managers were given the project process oriented training. Other parties involved haven’t had any project management training.</td>
</tr>
<tr>
<td>Team Commitment, dedication, hard work</td>
<td>Clear roles and responsibility for everyone</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>This was a commonly agreed success factor.</td>
<td>Teleca was observed to impose a matrix structure from which roles and responsibilities were not very clear. It was suggested that defining clear roles and responsibilities is important.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Managing risk</th>
<th>Clear roles and responsibility for everyone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk management was seen to play a vital role in project success. Project Managers, line managers, and customers each confirmed the importance of minimising risks.</td>
<td>Teleca was observed to impose a matrix structure from which roles and responsibilities were not very clear. It was suggested that defining clear roles and responsibilities is important.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer Awareness</th>
<th>Setting realistic deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project managers and line managers highlighted the importance of customer awareness in making the project a success.</td>
<td>Organisations committing to unrealistic deadlines resulted in high project failure rates. Setting realistic deadline is seen as vital for project success.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence and skills of staff.</th>
<th>Proper team selection and allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence levels and skill levels of the staff were seen as major criteria for project success by all</td>
<td>Selection of the suitable project manager and the project team based on the nature of each project was generally seen as important and, again, had implications for training</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial awareness</th>
<th>Organisational support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Managers and line managers agreed that commercial awareness is important</td>
<td>Support from the organisation and management was seen as a key factor and changes in the organisational processes, and structure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Managing change</th>
<th>Flexibility in the processes and projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>A project manager’s ability to manage change was often seen by customers, in particular, as influencing project success.</td>
<td>Due to the imposed matrix structure, Teleca project managers often faced inflexible processes and inflexibility in projects.</td>
</tr>
</tbody>
</table>
Table 4.1 Summary of Project Success Factors

The complexity of responses summarised in Table 4.1 demonstrate a broad understanding of the factors influencing project success. These same factors are represented diagrammatically in the following figure (see Figure 4.2).

When the respondents were asked whether missing any of these factors would cause failure in a project, they agreed that missing a majority of the factors might create failure but that none was likely, on its own, to do so. They also variously
suggested that: personal conflicts, lack of initiatives, blame/denial instead of fixing problems, bad monitoring of progress, indecisiveness, unrealistic expectations from management, and inefficient and time consuming processes can also contribute to project failure.

Figure 4.2 Factors influencing successful implementation of innovation strategies
4.3.3.1 Innovation as a project success factor

Most of the factors identified during this research as leading to project success are related to innovation. Proper planning, proper risk management, proper change controls require the devolution of responsibility to project managers’ ability to think and to do things in new ways. They require innovation. Project managers at Teleca agreed that without even thinking about it, they have been innovating as and when required.

I guess you get on with the job without thinking about it most of the time. Somewhere in the back of your mind is the Teleca Cookbook for managing projects but if you need to do something to make it work, that’s what you do. I suppose that’s innovation. (Hussein)

As they have been trained to see project success in traditional ways, many have tended to overlook the potential importance of innovation as a key project success factor. When attention is drawn to particular features, the same project and line managers realise that they have become increasingly innovative without realising it.

4.3.3.2 Traditional way of thinking

Only when they were asked directly whether innovation helped their project success did project managers speak about the importance of innovation and how it made their projects successful. What project managers initially saw as project success, before discussing innovation in projects, is reported in Table 4.2.
The responses summarised in Table 4.2 substantiate the training offered to project managers (see Ch 2), the demands of Teleca for its project managers (see 4.3 above), and their on-task experience. The majority of the project managers involved in this study confirmed that, for them, project success means: completing projects on time and within the budget, meeting customer and stakeholder expectations and meeting goals and objectives to agreed quality criteria. While these were commonly agreed, several other factors were proposed by more experienced project managers, by some line managers and by several customers. In fact, project managers who have seen project success as completing the project on time and within the budget tended to be the less experienced.

Not surprisingly, Project Managers with less experience tend to focus on the tangible indicators that demonstrate their project performance and confirm their capacity against published organisational imperatives, rather than attempting new ways of doing things which might lead to perceived failure. They appear to be happy to perform their role as they’ve been told, according to budget and timeline as a means of personal risk avoidance.

<table>
<thead>
<tr>
<th>PMs</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed on time</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Within budget</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Customer Happy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stakeholders happy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Goals and Objectives</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 4.2 Traditionally defined project success criteria
More experienced project managers report being more consciously innovative in their projects. As the experienced Dominic observes,

Changes involve more complex people management and the necessity of developing a balanced approach. Balancing cost, minimising delays, supporting people, managing change and obstacles and, at the end, still meeting the deliverables within the scope are the real art of project management. (Dominic)

Guardedly, however, he observes that others don’t necessarily have a similar view. Many of the less experienced managers, he observes, like to pretend that the project is strictly defined from the word "go" - “even though they know this isn’t true”.

A project will always change as our understanding increases. The project manager needs to impose structure onto the chaos of change, because people can’t work in chaos. Hence, a Project Manager needs firstly to be able to manage change. (Dominic).

While projects completed for Teleca were supposed to be managed according to a standard process, the majority of the more experienced project managers, when pressed to reveal how they actually worked, admitted that they used their own innovative ideas, often customising the process to meet individual project requirements.

You do what has to be done. If you can swing that by a different way and still crawl in under the budget then that’s cool too. (Iman)
Even within the rigid bureaucratic organisational structure, experienced project managers and line managers agreed that they could make their own decisions, and had freedom to take (limited) initiatives. From this position, Dominic indicated that he was a frequent innovator. The less experienced Andrea maintained that,

it’s not innovation that makes the project a success. But that might be part of it for some people. (Andrea)

In general, however, project managers tended to agree that innovation increased the likelihood of success in a complex project.

It may not so much be relevant to a project success, achieving project goals and objectives. However it could assist in delivering the project at a lesser cost and in a shorter time frame with a better quality. Organizations will benefit from it, but not as much as the project manager and the project team. (Ed)

More confidently, some believed innovation actually makes projects successful,

... because innovation allows project managers to handle the unexpected changes they might encounter throughout the project. (Frank)

Apparently contrary to the stated policy published in Teleca’s manuals, line managers confirmed that innovation was expected, recognised and rewarded across the organisation, at least in some areas. They reported that innovation could contribute to the greater success of a project.
I’ve had some great project managers come through. They’re usually the ones that spend some time with you before they start – just picking your brains. Trying to find out what you really want and how the end project should work. Then they seem to just pull their heads in and the next thing they’ve done something that you didn’t even think of and it’s better than you ever expected. That’s what I’m always looking for now. (Dianne)

They also suggested that there are some areas where innovation is required, that this depends on the type of projects and, innovation needs to be encouraged in the areas where it is required.

The biggest problem can be where you realise that the original plan wasn’t really that good. And you need to make changes but the PM wants to go by the book. That’s hard. ‘Cos they’re doing what they were taught but it doesn’t take into account the fact you might need to be a bit flexible. (Harry)

Several line managers suggested that, although innovation was not generally expected as a requirement of the project manager’s role, it was recognised and rewarded when it happened.

So I always write a note to Teleca when someone does something a bit different. Just to let them know that they have some pretty good PMs out there. (Bella)

Although Arnold suggests that innovation is not directly related to the types of projects usually run by Teleca, Bella observed, with a clearer perception of her evolving demands as a customer, that
new ways of working increasingly added to project success as new and improved processes come on line:

Experienced Project managers with quick decision making ability innovate and deliver projects in a way that makes customers and stakeholders happy. (Bella)

Similarly, Emma observed that innovation is useful, even essential during scoping, risk analysis, change management and when taking on-site critical decisions because,

… innovation in projects will make a big difference if implemented properly. (Emma)

Perhaps missing the point in their responses, Kathy and Leo rejected the view that project success depends on innovation. Though reporting that they had an open mind towards innovation, they did not accept either that it might be a critical factor influencing project success, or that it was required.

Meeting the stakeholder expectations is the success of a project. I don't think they will have any concerns whether we innovate or not, as long as the project delivered successfully. (Kathy)

Supporting Kathy’s approach, Leo suggests that:

I don't think it was expected. But you can be innovative as much as you want to be, if you think that's the way to go. You can get into trouble, if things go wrong by trying something not standard, but you can always try. (Leo)

It became increasingly evident throughout this analysis that, despite the rigidity of Teleca’s published documentation and directives, innovation is applied across the Project
Management section of the organisation, sometimes without their even realising it.

Project Managers tended to agree that innovation could contribute to the success, as a requirement or not. It was also clear that the level of experience of project managers did not largely influence innovation in projects. Instead, it appeared to be a matter of individual choice – generally supported through experience - though organisational support and encouragement clearly influenced the level of innovation in projects. According to the PMI definition (PMBOK, 2000), a project is about something new and unique where the product of the project is different in some distinguishing way from all similar products or services. This definition itself provides the connection between project management and innovation. Supporting the PMI definition, it is increasingly accepted that project management is used,

... to bring a new idea or project from its conceptual stage through development and cause its full implementation. (Brandt Larsen & Ruppert 1977:53)

4.3.4 Organisational actors influencing innovation strategies

4.3.4.1 Training Structure

Training for project managers in Teleca have been traditionally designed only to assure technical expertise and train them in the generic process of managing a project. Line managers and team members, similarly, are only given technical training to meet the expectations of their roles. They have not, to this point at least, been trained to understand the broader
complexity of the project management environment. Traditionally, there was a clear gap in training arrangements in Teleca in order to establish a responsibility matrix and then to foster an environment where successful projects are delivered. Flexibility, creativity, innovation were big no’s in this training strategy.

4.3.4.1.1 Training for Project Managers

When project managers were asked about the training they were given, all agreed that they had been given the internal project management training, which consists of an introduction to the Teleca Global Project Management Methodology, the project management process, and a familiarisation with the practices of the organisation. All project managers confirmed that they have received this training at the beginning of their employment as a project manager, or somewhere on the process. The most experienced project manager in the group, however, indicated that he didn’t have any formal training when he started, and had received formal training at a later stage of his project management career. Few project managers reported having received external project management training or any other leadership and management training.

All project managers had received technical training to support their roles, as and when required. They were given the necessary technical training to get their job done, including on the job training and formal training courses.
It was clear that the organisation expected project managers would only be able to do their job by using the internal project management methodology. Teleca did not appear to see any need for giving other management training to their project managers. Project Management, from this perspective, as appears to be seen as a task that any new-comer can do, as long as they receive the 2 day or 4 day internal project management course.

4.3.4.1.2 Training for project team members

Project Managers suggested that project team members were not given enough training on project management practices, and they have no idea what project management is all about. Most of the project managers organised informal presentations, workshops and discussion, to educate project team members on project management issues. Most of them also suggested, however, that their team members were only given technical training.

According to Dominic, a senior project manager with 15 years experience in project management,

Technical people are trained in their technical area. I have never known a line manager to train them in what it means to work in a project. The only training they get at the best of times is me or another Project Manager modifying their behaviour during a project. (Dominic)

4.3.4.1.3 Training for the management

The project managers informing this study believe that their line managers had been given basic or very little training on project management, and were only given the technical training to
perform their jobs. Sometimes they had not received any project management training at all. Project Managers suggested that the line managers had little idea what training they were given, or needed to be given, to ensure the success of project.

I've only ever had one Sponsor (Line Manager) who knew the role thoroughly and forced the process. However, the rest of the organization didn't have a clue. So there is a huge amount of bureaucracy in the name of "following the process" but in reality it's all lip service. (Dominic)

Teleca has given some limited training to its project managers, managers and project team members. Whether this is the right training to ensure the success of projects and the success of project managers is beyond the scope of this study but it is something that needs to be evaluated. If innovation is required in project success, the training programs should be expected to focus on the innovative aspects as well as management and control issues, rather than providing process based standard training. These issues will be discussed in the conclusions and recommendations chapter.

4.3.4.2 Process orientation

Project managers responding to this study generally suggested that they followed the standard processes required by Teleca, and believed that following these made their lives much easier. Some, however, admitted that they try new things when required. Significantly, many believed that the standard method was flexible enough to accommodate the new. They said that they modified it according to their individual project or group needs.
Highly experienced, Dominic freely admitted that he did not follow the standard process:

I use my own ways to suit each individual project. There are standard documents to plan and report progress but that doesn't constitute a process. The whole reason for having a PM is to have someone who can adapt to the unique situation of each project. This may sound strange, but when a process is fixed to produce a product you are not actually running a project, but employing "management by projects. (Dominic)

Dominic has been innovative in his projects even though there is a standard process to be followed. He has customised the process or, sometimes not used at all, in getting his projects delivered successfully. He suggests that the always changing conditions in projects demand project managers who are innovative.

Providing a similar view, Line Manager, George suggested that,

Project Managers who follow the standard process and not doing things differently are not known and recognised by the customers and they’re less likely to succeed. (George)

4.3.4.3 Punishment for failure

When asked who is responsible for the success or failure of the project, it was interesting to see that project managers took the
responsibility into their hands. Project Managers suggested that success or failure of a project is the exclusive responsibility of the project manager and the project team.

Through the discussions it was clear that project managers believed that when there is a success, everyone shares it and when there is a failure, only the project manager is there to get the blame.

… everyone will blame the PM for the failure of the project, regardless of the truth. A good leader would not blame his project members anyway. A half-decent PM with a reasonable team, not all experts, will be able to deliver a reasonable result if the goalposts don't keep changing. The PM delivers a result within defined scope, but most failures are caused by a vague or constantly changing goal. The PM will manage this, but the project will be deemed a failure because he doesn't fulfil the original conditions. A Project is a PM, the team, the sponsor and the customer. Success and failure should be shared by all of them.

(Dominic)

The lack of shared responsibility, it appears, de-motivates project managers from taking up new challenges as they are not getting enough support from other parties involved in making projects successful.

4.3.4.4 Freedom to take initiatives

Since most of the project managers said they followed standard process but were still able to be innovative, how much freedom they were willing to take on their own initiative became the focus of further response. Most agreed that they could be innovative “within the boundaries set by the standard process”.
Andrea considered that the bounds of innovation were dependant on the type of project. Carla suggested that, “the rules are too rigid in the organisation to support innovation”. As a result, she observed, her projects were very much process oriented.

Dominic, deploring the lack of innovation in projects, observed that,

Processes are unfortunately usually defined by people who don't understand the dynamics of projects. It is insane to have a standard process, as two projects will never be the same. Process heads have taken away one of the most important tools a Project Manager has. They also create unnecessary bureaucracy to make line managers feel safer in the organization by imposing bureaucratic tool (Dominic)

Carla, having mentioned that innovation couldn’t happen in the organisation due to rigid rules, nevertheless suggested that, “sometimes you get freedom to take your own initiatives”. Only Dominic considered that he did not have enough freedom. Dominic’s answers to the questions clearly show his preference to innovation over standard processes.

To be really innovative would be too frightening for the bureaucrats. They wouldn't be able to recognise what you were doing and would feel insecure. Having said that, I innovate despite that environment! The only reason people feel they can innovate within the standard process is that the process is so lousy and doesn't apply anyway (Dominic)
4.3.4.5 Flexibility of the standard methods

All line managers were aware of the project management methodology used in the company, suggested that it was flexible enough to be used for any projects and, at the same time, could be customised for individual or group needs. Most line managers, however, maintained one standard customised model for their group needs and, apparently, only built from that process if they were eliminating the existing one. No line managers, however, suggested that project managers should stick with a single process. Instead, they suggested that project managers were expected to try to find their own ways of working when required.

This proposed freedom to innovate, however, did not appear to translate to the less experienced project managers though Ed believes that he can improve or develop new processes within organisational policies that will achieve the end goal. Improving process is also about innovation, and Ed suggests that changing processes streamlines achievement of his end goal, which is the success of projects.

4.3.4.6 Organisational encouragement for innovation

Project Managers at Teleca generally reported that the organisation was not expecting them to innovate proactively. In some instances, however, when their innovation succeeded, it was accepted – and even encouraged and rewarded - by the organisation. Nevertheless, innovation was only expected in some areas, and appeared to be particularly true in research and development. In most of the cases, project managers
were held responsible for failure and this led them to stick to the standard process and feel secure in their role.

The majority of project managers responding to this study recognised that innovation was a necessity to make projects successful. None of the project managers reported innovation as being unnecessary. Even though project managers suggested that innovation was not expected by the organisation, they supported the fact that it was a necessity and, for those who were confident enough to embrace it, it helped them to succeed at which point, the organisation suddenly appeared to encourage innovative approaches.

For Dominic, the fact remained that:

Innovation isn't expected by the organisation, and it is a necessity sometimes, but at other times it is a way of maximising the probability of a successful outcome. [However] It wasn't encouraged [even when it] was successful. As I said, many successes were in defiance of the "process". (Dominic)

Providing a similar view, despite his lesser experience, Ed agreed that innovation was not expected or encouraged by the organisation, but it was seen as a necessity when it succeeded.

Certainly can be a necessity in the current economic climate we all are in. Anything we can do better than we promised goes a long way in the current survival game. It wasn't encouraged, succeeded, accepted by the organization as a new model of delivering projects. Recognised to some extent, as I explained, benefits are
4.3.4.7 Authority to make decisions

Despite the apparent contradiction between the published requirements for project management practice, all the line managers insisted that project managers were given the required authority to complete their tasks, that it was up to the project manager to do whatever was best for their project, and that they were expected to take decisions accordingly.

Customers were somewhat less convinced. Only half of the customers responding to this study believed that project managers were given sufficient authority to make on-site decisions. Andrew considered that only senior project managers were given sufficient authority to act as the situation needed. He did not consider that junior project managers were offered enough authority to make such decisions. In fact, he suggested, junior project managers were forced to rely on the senior project managers for support most of the time.

Carl, however, suggested that they were given authority but were generally not using it properly. Bettie was not sure whether they are given the authority, but she felt that she had seen some project managers make decisions effectively. Hussein, with only limited experience, nevertheless observed that he had seldom seen project managers deviating from the agreed details of the project.

4.3.4.8 Rewards and recognition

Asked whether innovation was expected, encouraged, recognised and rewarded, project managers agreed that it was
encouraged by the organisation, when it succeeded. Confronted with the same question, as the decision makers at the top, line managers are responsible for supporting, encouraging or recognising innovation. Not surprisingly, they considered that they encouraged innovation. In view of the findings reported to this point, it appears that their encouragement is rather incompletely communicated to their project managers.

4.3.5 Individual Factors influencing innovation strategies

4.3.5.1 Ability to make decisions

As previously reported, the line managers informing this study suggested that some project managers follow the standard process and some do not. Some project managers develop and use their own tools. However, for reporting purposes it was expected that everyone should follow the standard process. All the line managers believed that project managers followed standard reporting processes, and that these sometimes obscured the level of initiative which had been introduced to achieve project success.

In this context, Arnold believes experienced Project Managers usually make decisions quickly and effectively though they often do not report them as changes from the project specifications. Bellaagrees that they have the authority, but only experienced PMs make their own decisions. In an apparent removal of himself from any responsibility, Fred observes that,

Line Management is not involved in projects after handling that over to the Project Managers. They have
complete freedom to make their own decisions. Line Management is only there for support. (Fred)

Supporting the same view, Harry observed that,

Project decision making is the responsibility of the PMs. Some PMs expect managers to make decisions for them, but this is not right. PMs should make their own decisions. At the end of the day, they know what is right for their projects. (Harry)

Customer Andrew suggested specifically that senior Project Managers are helpful when it comes to making decisions quickly and effectively. Most of the customers were similarly happy about PMs decision-making ability. Inexperienced Hussein, who had only encountered failures to this point, however, felt that innovative decision making was absent from the projects he had observed and, further, that his project managers couldn’t take any urgent decisions. He believes this is one of the main reasons leading to project failure.

4.3.5.2 Being innovative

Project Managers recognised the importance of being innovative in making projects a success. Leo with 15 years experience in project management in different areas suggested,

Project managers are there to innovate. That's what we do everyday. We come here and see what we do to make it faster and better. I think this is innovation. (Leo)
Furthermore, having successfully managed various types of internal consulting, change, design, implementation, and commercial projects, Leo considers that,

Freedom is not really given. I make my own initiatives whenever required. I don't expect approval for each strategy I deploy in my projects to make it a success. (Leo)

Response from line managers and customers has confirmed that some project managers are innovative throughout their projects and managed them successfully.

Despite identifying some who had been, only one line manager, Damien said that his project managers were not innovative. He believed his department was highly process oriented and felt that project managers should follow the process to achieve the expected results.

Other line managers who believed that project managers are innovative also suggested all project managers should be innovative.

Project requirements change from time to time. To manage that change you need innovative people. Some of them are more creative than others. I think it is an individual factor. (Chris)

From these discussions it was evident, even when the freedom to make innovative decisions did not seem to be there, experienced project managers still innovated.
All customers reported their belief that innovation adds value and contributes to the likelihood of project success. More emphatically, they suggested that project managers should be required to be innovative to manage the constant changes that arise in projects, and to engage in dialogue with the customer to ensure they are happy with the project as it progresses and at its conclusion. Not all customers, however, were sure that innovation represented a necessity or whether it was an emerging requirement only in some projects.

4.3.5.3 Individual Preference, motivation and passion for Innovation

As already established across several sections, it is clear that long term project managers such as Ed and Dominic are likely to abandon established processes and innovate where they judge that it would be useful, while less experienced or junior project managers such as Andrea are not yet prepared to take the risk.

Project manager Dominic argues that it was his passion for innovation that led him to successful project management. Even when the innovation was not expected, encouraged or recognised by the organisation, he has innovated successfully in projects but, according to him, it has not necessarily made him successful as a project manager. As a consequence, he still warns that project managers should be expected to follow standard processes even when they are varying the specific procedures.

I have used innovation successfully in my projects and it was successful many times. I did it because of my
passion for innovation... I innovate despite the bureaucratic environment...but my organisation blamed me for not running the project properly according to the process and being a bad role model (Dominic)

4.3.6 Factors influencing innovation strategies

As has been discussed, the data collected during this study has identified a range of organisational and individual factors influencing innovation strategies in the project environment. The agreed factors identified during this research as influencing innovation strategies in project management, leading to project success are summarised in Table 4.3 below as:

1. Individual factors leading to the success of innovation strategies of project managers, and
2. Organisational / environmental factors leading to the success of innovation strategies in projects

By identifying individual factors, organisations can develop strategies to enhance competence and skills of project managers and, by identifying organisational factors, organisations can implement required changes to the project management environment.

4.4 Successful innovative frameworks

On the basis of the findings reported in this chapter, an Innovation Framework has been designed to identify environmental changes in the organisation that would provide greater support for the development and application of innovation strategies in projects (See Figure 4.2). This
schematic Framework shows the role innovation plays in project success and identifies strategies used by project managers and the organisation to encourage innovation in different types of projects at different settings.

In addition, the Framework offers recommendations for where Teleca might consider encouraging innovation and what actions might be taken in encouraging innovation, based on the result of data analysis. This framework will be used in providing recommendations for organisations to encourage innovation in their projects, and to develop their future strategies for innovating in projects (see Conclusions and Recommendations - Chapter 5).

4.5 Chapter Conclusion

This chapter has provided an analysis of data collected from the primary interview sources involving project and line managers and their customers, and of secondary data derived from organisational publications. It has identified and discussed agreed project success factors, the role innovation plays in projects to make it a success, and the factors influencing innovation strategies in projects.
Factors Influencing Project Success (Fig. 4.3.1)

Organizational Factors influencing project success (Table 4.1)

Innovative Framework for understanding factors influencing innovation strategies in project success

Innovation as a factor influencing project success (4.3.3.1)

Organizational factors influencing innovation (4.3.4)

Individual Factors Influencing project success (Table 4.1)
Data analysed in this chapter provides the basis for suggesting an innovative framework (see Figure 4.2) for organisational policy development at Teleca and for increasing understanding of the factors influencing innovation in projects in the Teleca environment. The final chapter of this thesis (Chapter 5) provides the conclusions a summary of the research and the conclusions drawn from it. The chapter closes with a discussion of the implications of these findings and suggests areas for further research.
Chapter 5 Conclusions and Implications

This chapter is presented in two sections:

5.1 Summary and Conclusions: This section provides an overview of the study and its initial intentions, outlines the composition of the study sample and summarises the motivation for the study. It then presents a summary of the key learnings taken from this research to meet its research aims and objectives and offers a sequence of conclusions drawn from those learnings.

5.2 Practice and Research Implications and Future Directions: This section identifies the implications of the research findings for the design of future studies and, from a practical viewpoint, offers a model for the promotion of innovation in project management for further consideration. Finally the section offers recommendations for improved practice in the subject organization and offers a series of and recommendations for future research.

5.1 Summary and conclusions

Project success depends on a wide range of well-defined, traditionally accepted and frequently inter-dependent factors. In addition to the basic time, cost, and quality expectations, an increasing range of criteria is being recognised as significant for the assurance of project success in today’s competitive environment.

Based on the case study of an organisation identified fictionally as Teleca, this case study was initiated to explore the innovation strategies used by project managers at Teleca, and
to better understand the factors influencing their innovation strategies. In doing so, it was expected to provide recommendations to improve project success rate and to encourage the success of project managers in an organisation, where many projects had been identified either as failures or, at best, as only meeting minimum requirements. From an organisational morale perspective, too many of the project managers felt that they had been identified as unsuccessful project managers.

As a consequence of these considerations and a review of the available and emerging literature, the following research questions were identified as a basis for the study:

1. Is innovation an element in influencing the success of projects and project managers?

2. What are the factors influencing the successful implementation of innovation strategies of project managers?

In determining the study sample for this research project, it became clear that project managers in Teleca constituted a relatively balanced mix of males and females who came from varying technical backgrounds, with different levels of experience ranging from 1 to 15 years, and represented different cultural and ethnic groups (see Figure 3.2).

Teleca project managers were trained by the organisation through involvement in introductory and process oriented courses in project management. They were trained to follow a Teleca devised standard global project management methodology. However, some of the more experienced
individuals in the organization observed that there was sufficient flexibility in this model to allow freedom for, at least, a modification to the methodology according to their needs.

Nevertheless, it was evident from interviews with the line managers in the organization that project managers were expected to follow the standard Teleca process and maintain consistency in the way that specific groups worked and reported their progress or outcome of the project.

Innovation and creativity were not encouraged by line managers and it appears possible that this rigidity led to both poor success rates in project completion and, as a corollary, poor morale among project managers.

Recognising these issues, Teleca has been making a publicised effort, during the past several years, to move away from the bureaucratic process-oriented culture. The rigid process orientation, however, remains its published benchmark for project management assessment towards a more innovative organisational culture.

This research thesis has presented an exploratory study of the particular role played by innovation in project success. The research involved a detailed analysis of the factors identified by project managers, their customers and their line managers as influential in delivering successful project outcomes.

The innovative efforts of individuals and the change of organisational environment to foster innovation in organizations in previously developed project management models have been identified (see chapter 2) and various factors influencing
project success and the role innovation plays in project success have also been discussed. From the interview data presented in chapter 4, this study has confirmed many aspects of the innovation process and the factors influencing innovation.

The study has identified specific areas where innovation is considered to be crucial for project success. As might be expected, these include Research and Development, and Change projects. In response to the initial research question (see 1.2), the findings presented in the previous chapter (see chapter 4) have confirmed that:

Conclusion 1 - **There is an identifiable link between innovation and project success.**

This study has established that while Teleca has made some progress in encouraging innovation in the top levels of the organization, it is still not seen as a priority – or even a necessity – at the project manager’s level. Recognising that Teleca may not be able to see how to effect change in the traditionally process-oriented organisational culture, this study then sought to identify the factors affecting implementation of innovation in project management.

As an outcome of this study, a conceptual framework (see figure 4.2) was constructed to better understand the role innovation plays in the success of projects and recognition of the attributes of successful project managers. The conclusions drawn from the findings presented in chapter 4 are detailed in the following sections.
5.1.1 Understanding project success

As previously indicated, this research confirmed that the success of projects depends on a range of factors, some within and some beyond the capacities of the project manager. During the process of investigating project success factors, it became clear that people were trained to follow the definitions they had been taught during their training courses. Namely, successful projects are those which are: completed on time, within the budget, and according to specifications. In addition, it appears, most project managers recognise a range of additional though sometimes ill-defined needs including: making the customer happy, achieving quality, and meeting goals and objectives.

The project managers informing this study accept that they are responsible for the failure or the success of their projects. Shifting the responsibility, perhaps, some believe that it is not only the project manager, but also the project team who is responsible for the success of the project. All the respondents, both individually and in groups, held similar views on this issue, and identified factors such as poor communication, not understanding customer requirements clearly, bad planning, and not having enough support as the reasons for failure of projects. The findings of this study suggest that, despite the level of apparent certainty presented in much project management literature,

Conclusion 2 – the factors affecting project success are variously understood by project managers according to their experience levels and the impact of organisational culture on their self-confidence.
5.1.2 Factors influencing innovation strategies

This research strongly suggests that, if the organisation establishes a culture that fosters innovation, project managers would implement innovation strategies in their projects making their projects more successful.

Previous studies show that innovation plays a vital role in decision making and its appropriateness to be built into organisational expectations to optimise outcomes. The Teleca informants to this study have established that a similar approach needs to be specifically established in project management because it is not a generally accepted method of operating to this point.

Importantly, the traditionally agreed demands for effective project management have been seen to represent a barrier to effective management. New project managers were happy to follow the set standards, however the experienced project managers were inventing their own. They believed instead that the traditionally accepted demands created unnecessary bureaucracy. Despite this observation, the majority of project managers informing this study suggested not only that they could be innovative within the standards of the process, but that they regularly took initiatives.

Innovative efforts in this organisation were sometimes not seen as innovative efforts. Many people took initiatives in this environment. While a number of the informants reported regularly modifying processes to meet emerging demands, few acknowledged this as innovation. Equally importantly, the lack of clear agreement on what constituted innovative practice made it difficult to ascertain whether informants were unwilling
to report that they were deviating from accepted practice or whether they merely had failed to consider it as worth reporting because such efforts were neither expected, recognised or rewarded.

Some people are successful by being creative. Some people are successful by following the standards. Again, this is dependant on project type. It was clear that some individuals were more creative than others. Some projects obviously demand creativity, some do not. In the conceptual model already developed (see figure 4.2), it was observed that innovation should be encouraged in different type of projects, and project organisations need to use different types of individuals to manage them. Creativity and innovation should be encouraged in projects where it is necessary.

Conclusion 3 – *Innovation should be identified as an essential criterion for ensuring project management success.*

In addition to identifying the factors affecting project success (see 1.2 and 5.1 above), this study sought to establish whether these factors, regardless of whether they were traditionally defined or ill-defined, positive or negative, were the only reasons for project success or failure. This emphasis was added to better understand the effect of applying innovation strategies on project management success.

5.1.3 Innovation as a project success factor

This research provides strong evidence that:
Conclusion 4 - *Innovation is fundamental to maintaining project success.*

This study strongly suggests that experienced project managers and their customers commonly accept the need for innovation and creativity to manage changing conditions in the execution of a project (see 4.3.3.1). It was evident that innovation helps project managers to be different and be successful, regardless of the project outcome they see at the end. Even an unsuccessful project according to traditional criteria, may be deemed a success if the customer and the project management team can identify why its original specifications could not be met.

Sometimes, it was confirmed, project managers are recognised for the innovative practices and solutions they introduce in handling their projects. In general, as could be expected, experienced project managers were more likely to take risks, make their own choices or introduce innovation than inexperienced project managers.

The majority of project managers informing this study suggested that they were stimulated and challenged by large commercial and turn-key projects where the scope for innovation was seen to be significant to project success. Specifically identifying the satisfaction of working with customers, project novelty, variety and complexity, and the challenges of working in teams, and also complexity, project managers were generally far less satisfied with their management of internal and process driven projects. This study suggested that Teleca project managers, at least, are stimulated by the opportunity to be innovative if they are given the opportunity.
The role that innovation plays in determining project management satisfaction appears to be a major factor in assuring project success. However it was equally clear that the level of innovation and creativity needed was different from project to project. It was notable, though, that line managers were resistant and that less experienced project managers were largely unaware of how much value innovation might add to their projects, and how they could exercise appropriate levels of creativity within the boundaries set by the organisation. In the face of previous training and traditional approaches to project management, this study strongly suggests that:

As previously established from the literature (see Chapter 2) and confirmed by most of the more experienced informants to this study (see 4.3.3), project success was defined in many terms, often quite unclearly or ambiguously.

While this study indicates that innovation plays a key role in successful decision-making in projects, it was not given a priority in defining the success of projects. Only when asked directly, did respondents accept it as a frequent necessity for project success. Generally, however, when it was brought to the discussion, project managers were happy to talk about innovation strategies that they had applied successfully. Though some project managers said innovation was encouraged in their projects, and in the organisation, the majority presented a contrasting view. Few project managers said they had succeeded by innovating in their projects.

Conclusion 5 – **Innovation should be explicitly supported at all organisational levels if it is to become generally practised by project managers.**
It was evident that project managers had not been trained (4.3.4) by Teleca to consider innovation as a project success factor. In contrast, it appears, innovation has been actively discouraged in the organization until recently at least. Instead, the majority of project managers and their line managers unquestioningly accepted what they had been told to do: to meet budget, timeline and specification targets.

As previously established, however, project managers who followed the process unquestioningly, were not necessarily successful. Line managers, generally, were happy with the ways they believed senior project managers played their roles. As the study showed, however, senior project managers were more comfortable breaking the rules and innovating. It is arguable that innovation helped them to achieve that success.

Applying a broader perspective, there are people at Teleca who want to innovate and people who like to encourage innovation in the organisation. It is therefore, important to specify who can, who should innovate, and where it should be applied (see 5.2).

**Conclusion 6 – project success is more likely where innovative project managers are identified and supported.**

This research aimed to better understand whether innovation is advantageous to all the projects, and throughout the organisation, or whether it should be encouraged only where it is necessary. The conceptual framework that has been suggested in the previous chapter (see figure 4.2) summarised the practicalities of a Teleca response to this question. It has suggested different types of projects, and different phases of
projects where innovation is critical for project success, and identifies the factors influencing the implementation of innovation strategies. These, however, need to be further researched to provide confirmation of the general applicability (see 5.2).

5.1.4 Traditional factors affecting project success

This research has provided a detailed analysis of existing literature highlighting the factors traditionally recognised as critical for making project a success (see 2.3). These data showed Innovation has not been traditionally recognised as a critical factor in project success. In developing this innovative framework, organisational and individual factors have been included in drawing conclusions and making recommendations for further practice.

5.1.4.1 Organisational factors influencing innovation

This research has identified various organisational factors influencing innovation in projects as provided in the Innovative Framework (see figure 5.1 for elements discussed in 4.3.4)

Organisational factors include:

➢ Flexible process
➢ Flexible structure
➢ Less control
➢ Freedom to take initiatives
➢ Time to take initiatives, idea time
➢ Proper training
➢ Management and organisational support and encouragement
➢ Rewards and recognition
These largely confirm the findings from the literature on organisational factors influencing innovation (see 2.5). As this study was done in a project environment, rather than a general managerial environment, the findings suggest opportunities for new learning and further research in the field.

5.1.4.2 Individual factors affecting innovation

Previously identified individual factors (see 2.5) leading to innovation strategies were confirmed in similar manner (see 4.3.5). These factors are highlighted in the Innovative Framework (see figure 4.2).

Individual Factors highlighted in the Innovative Framework include:

- Level of Experience
- Initiative and Creativity of individuals
- Risk taking
- Ability to change and adopt
- Wanting to do things better and differently
- Individual preference and passion for innovation
- Motivation and self satisfaction

Based on the findings of this research,

Conclusion 7 - *Where innovation is important in project success, project organizations need to champion project leaders who are innovative and capable of making decisions in today’s competitive environment.*
As defined from the literature, a project is simply doing something that hasn’t been done before. In this context, each project is unique and doing something unique always requires innovation.

5.2 An innovative framework for project success

Whereas the previously established framework (see figure 4.2) provides a descriptive template for the identification of factors affecting innovative practice in project management, it offers little to suggest how that practice might be encouraged, extended and even identified as a focal point for successful management.

Figure 5.1 provides increased detail for the innovative framework previously established (see figure 4.2) to describe the role of innovation in project success. Further, it recognises and integrates the potential for organisational and individual factors to influence the innovation strategies of project managers.

Extending from the preliminary description, this framework integrates the input data described in chapter 4 with Teleca’s organisational training publications and the traditionally defined factors and emerging suggestions derived from the literature review (see chapter 2). This framework clearly shows that the factors influencing projects success include the traditionally identified project success factors and the innovation strategies of project managers (See 4.3.3.1 & 4.3.3.2) and the necessity for an innovative organisational environment (see 5.1.3, conclusion 4.)
Though it was evident that innovation was required to a greater extent in some projects, and also in some phases of projects, where others did not require innovation to the same extent, it was equally clear that innovation was more likely when it was consciously recognised and approved (see 5.1.2, conclusion 3).

This research also showed that the amount of innovation required in projects (4.3.3.2), could vary in different phases, even in the same project. Activities like project planning, change requirements, and risk management appeared to hold intrinsically greater demands for innovation (See 4.3).

Similarly, while projects involving variety, research and design, and new product or process development require innovation to a greater extent than other projects, factors like new business, new customers, and new technology also create an increased demand for innovation (See 4.3).

On the basis of these findings, it seems likely that

Conclusion 8 – *Innovative project management is stimulated in an organization which promotes flexibility and creative problem solving.*
Figure 5.1 Suggested Framework for Implementing Innovation Strategies in Projects

Innovative Organisation

- Flexible process & structure with less control
- Freedom and time to take initiatives
- Proper Training
- Management support, encouragement,
- Rewards & recognition

Types of project
- R & D projects
- New products, new technology, new business, new customers,
- New service, new process
- Variety

Traditional project success factors

Factors influencing project success

- Level of experience
- Initiative and creative individuals
- Risk takers
- Ability to change, and adopt
- Wants to do things better, and differently
- Individual preference and passion for innovation
- Motivation & self satisfaction

Innovating in Projects

- Quick and effective decision making
- To do things better at any stage

Phases of project
- Change management
- Risk management
- Project planning
- Quick and effective decision making

Innovation strategies of Project Managers
5.3 Recommendations for further research

Although this exploratory research study has provided many valuable insights into how project managers within large organisations apparently apply innovation strategies to ensure project success, its relatively small sample size, its limitation to a single organization within a single industry, and its qualitative approach each place generalisation beyond the scope of the study.

The case study of Teleca, nevertheless, has identified a range of issues that offer potentially fruitful starting points for future quantitative research in the field.

5.3.1 Confirming boundaries

To maintain appropriate scope for a doctoral study, the sample selected in this study was necessarily limited to a single organization and industry. Such a selection is appropriate to an exploratory study although, as previously identified, its generalisability cannot be assured.

As the researcher was currently working in the Teleca environment during the data collection phase of the study, some informants were initially hesitant to participate in the research. Particularly, they tended to be reluctant to talk about the success or failure of their projects. Recognising this as a potential limitation on reliability of the data, necessary actions including crosschecking responses using three different groups and validating data using a final focus group meeting (see chapter 3) were taken to ensure participants would provide open
... and honest feedback, In future studies of this nature, therefore, it is suggested that:

Recommendation 1 - Confidentiality and privacy limitations and problems could be reduced by researching a company as an independent researcher, rather than trying to understand a case in researcher's own organisation.

This research has been based on a case study of a large multinational IT/Telecommunications organisation. However, these situations are common to many organisations covering various industries. As a consequence, it is suggested that

Recommendation 2 - Further research into different areas of project management could usefully focus on the applicability of a similar conceptual framework to different organisations in different industries.

Key informants were carefully selected during this research, however it was beyond control of the researcher to see whether they represented the most qualified group of key informants for this research. In this sample, it was interesting to see that more experienced project managers and female project managers were innovative than the others in the group. As it is a small sample it is hard to provide generalisations, however this would offer an interesting area for further research in the disciplines of innovation and entrepreneurship. As a consequence, it is suggested that:
Recommendation 3 - *Fruitful future research could be focus on the selection criteria of the key informants, sample size and cross-industry representation.*

5.3.2 Supporting innovation

As previously identified (see 5.1.3), there are people at Teleca who want to innovate and people who like to encourage innovation in the organisation. As a follow-up to this finding, it is suggested that:

Recommendation 4 - *Useful future research could seek to identify the innovators and those who promote their interests to establish the extent to which innovation actually accelerates project success.*

5.3.3 Confirming innovative success strategies

While qualitative research can only reasonably suggest recommendations for practice, the success rates of projects using innovation strategies, anecdotally reported in this study, need to be confirmed through a detailed quantitative analysis seeking extension towards an explanatory research study. It is anticipated that subsequent research of this nature will be required to afford generality to the findings of this present study. To substantiate the findings of this study, it is suggested that future research accept that innovation makes a significant difference to project management success and:
Recommendation 5 – a broad-scale, cross-industry study focused on factors encouraging innovation could be expected to substantiate the innovation template developed in this thesis (see figure 5.1)

5.4 Towards an innovative framework

The preliminary Innovative Framework developed from the findings of this research (see figure 4.2) provided a basic template for better understanding the relationship between innovation and the success of project managers. This descriptive template was used to develop an expanded Framework (see figure 5.1) which might be expected to help organisations to understand the essence of innovation in project success.

As initially described (See 1.3), this research aimed to identify factors influencing project success and to better understand the role innovation plays in project managers’ thinking about how they can or might operate to improve their success rates. From this identification, it was expected to provide an increased understanding of the factors influencing innovation strategies of project managers.

Where innovation was identified as a factor influencing the success of projects and project managers, this study aimed to propose environmental changes in the organisation that would provide greater support for the development and application of innovation strategies in projects. By achieving these objectives, the research sought to provide exploratory answers to the research questions, identified in 1.2.
1. Is innovation an element in influencing the success of projects and project managers?

2. What are the factors influencing the successful implementation of innovation strategies of project managers?

The Innovation Framework for Project Management (see figure 5.1) presented in this thesis is based on the conclusions drawn from the findings of this study and the implications of these conclusions form a basis for the recommendations for further research identified in the previous section (see 5.2).


Berg, B.L. 2001, Qualitative Research Methodology for the Social Sciences, Allyn & Bacon, Boston.


Cherniss, C. 2000, Emotional Intelligence: What it is and Why it Matters, Rutgers University, Piscataway, NJ.

University of Sydney.


Hildebrand, C. 2005, A brighter light bulb, PM Network, may 2005, p36-41


Nicholas, J.M., Successful Project Management: A Force-field analysis, Jan 1989, vol 40, no1, pp.24-31
PMI, 2000, PMBoK: Project Management Body of Knowledge, PMI USA

PMI 2004, Project Management Body of Knowledge, Project Management Institute


West, M.A. 1997, Developing Creativity in Organizations, BPS Books, Leicester, p.3.


Appendix A:

Informed Consent Request
Factors Influencing the Innovation Strategies of Project Managers

Thank you for volunteering to assist in this Doctorate of Business Administration (DBA) research project on Factors influencing the innovation strategies of Project Managers. The scope of the research is to better understand and evaluate factors influencing successful decision making in Project Management in different types of project environments.

The interviews are expected to finish within 30 to 40 minutes.

Your participation for these sessions is valuable for the research, but you may withdraw from further participation at any stage. If you should feel the need to withdraw anytime, all the information you have provided will be destroyed. All information supplied will be treated in strict confidence and you will not be identifiable in any report of the research that is published.

If you need further information please contact:
Madhu Fernando
Project Manager
Ericsson Australia Pty Ltd,
61 Riggall Street,
Broadmeadows 3047
(03) 9301 4444

Thank you for agreeing to assist with this research project.

CONSENT FORM

I _____________________________ agree to take part in the research investigating the Factors Influencing Innovation Strategies of Project Managers. I accept that I will be interviewed and I agree that this interview may be tape recorded as a data source for the researcher but that the recordings will not be published or publicly displayed. I understand that I may withdraw from the project at anytime and I am satisfied that all information supplied to the researcher will be treated in the strictly confidence.

--------------------------------    -------------------
Signature      Date
Appendix B:

Interview Protocol: Indicative Questions
Appendix B: Interview Protocol: Indicative Questions

Project Managers

1. What sort of projects do you enjoy the most?
2. How long you have been in Project Management?
3. Do you have specific training as a Project Manager?
4. Which of the projects you have managed would you count as successful projects?
5. Can you identify the factors you think have contributed to project success and failure?
6. What kinds of barriers have you faced in making projects successful?
7. In managing your projects, do you,
   a. Follow a standard process in managing projects,
   or
   b. Are you able to take your own initiative when it is required.
8. To which extent do you feel empowered in making your own decisions?

Manager's of Project Managers

1. What is your relationship to the project organisation?
2. What factors seem to be most important in generating success for a project?
3. Are these the same factors that need to be considered when a project fails?
4. Do the project managers follow a standard process or are they taking their own initiative in managing projects?
5. Do you think there is room for project managers to be innovative in managing projects in this organisation? And, do they take their own initiatives?
6. Are you satisfied with the way projects are managed in the organisation?
7. Are innovations recognised or rewarded in the organisation?
8. To what extent do project managers have authority to make their own project decisions?

Questionnaire for the customers

1. Are projects managed by different project managers differently? or Do they follow the same procedures?
2. How do you feel about Project Managers making their own decisions?
3. Are the project managers capable of making decisions quickly and effectively?
4. Do you believe innovation is required for project success? and do you think project managers are innovative?
5. Do you expect Project Managers to take full responsibility for project delivery?
6. Do you give Project Managers full authority to plan, monitor and deliver your projects according to your requirements?
7. What factors have you found contribute to successful Project Management?
8. Are the factors that lead to success the same as those that create failures?
Appendix C:

Use of Content Analysis in the Research: An example
Appendix C: Use of Content Analysis in the Research: An example

<table>
<thead>
<tr>
<th>Project success, Success factors</th>
<th>Innovation in Project Success</th>
<th>Organisation al Factors influencing innovation</th>
<th>Individual Factors influencing innovation</th>
<th>When, where, to what extent innovation used, encouraged, rewarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Source (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Matrix of Categories used during the Content Analysis of Organisational Publications and Literature Review

<table>
<thead>
<tr>
<th>Project Success Factors</th>
<th>Project managers</th>
<th>Line Managers</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11 12</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Organisational:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Less bureaucracy</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Rewards and Recognition</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Freedom to make decisions</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Individual:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Leadership</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Teamwork</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Innovation</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Matrix of Categories used in analysing data collected through the interviews

*This is an example only. Does not show the real data. See Ch.4 and 5 for the findings of the research for details.
Appendix D:

Data Summary