EVALUATION OF CRITICAL FACTORS INFLUENCING PROJECT SUCCESS AT AN AUTOMOTIVE OEM IN THE EASTERN CAPE

By

D.W. Williams

Submitted in partial fulfilment of the requirements for the degree of Magister in Business Administration at the Nelson Mandela Metropolitan University

December 2012

Promoter: Mr M. Keet
DECLARATION
This work has not been previously accepted in substance for any degree and is not being submitted in candidature for any degree.

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ABSTRACT

This study aimed to evaluate the critical factors influencing project success at an automotive OEM in the Eastern Cape. The main purpose of this study was to evaluate the critical success/failure factors in project management at an automotive original equipment manufacturer (OEM) and to compare the results to similar studies conducted in various industries and under different socio-economic, political and cultural conditions.

The research methodology for this study included a literature review of previous studies as well as insights from various authors highlighting points deemed crucial for project success. A survey was conducted at an automotive OEM to determine which factors had the greatest influence on project success; respondents were asked to rank their views on a Likert Ranking Scale. An online survey was used to capture all responses. The data collected was analysed using statistical software (Statistica Version 10.0). The empirical study was conducted on 52 employees involved in projects at the OEM; the study was carried out across various departments including Purchasing, Logistics, Quality, Engineering, etc.

The final process of the study included an evaluation of findings. On the basis of the survey responses received, it was possible to identify critical success factors in project management that are related to the automotive OEM. These results were used to draw conclusions and develop various recommendations. The conclusions centered on the project success factors defined in the survey. The results were then compared to previous studies, and discrepancies between survey findings of the current study and those of past studies were discussed. The recommendations focused on the top three items identified in each factor group.
**Key Findings** - The results of both past studies, as well as the present study highlight the crucial role the project manager plays in project success. Good co-ordination skills, efficient management of resources and effective leadership were identified as key characteristics of successful project managers. Proper communication was identified as one of the most crucial points in project teams. This study revealed that the ability of the project team to handle unexpected crisis is also an important contributing factor towards project success, along with effective monitoring. Top management support was the most crucial factor towards project success in the factors related to the organisation; this is similar to studies done by previous authors.

**Keywords:** Project, Project Management, Project Manager, Project Success, Team, Leadership, OEM, Automotive, Critical Success Factors.
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LIST OF ABBREVIATIONS/ACRONYMS

APMBoK: Association of Project Management Body of Knowledge
BOK: Bodies of Knowledge
KPMG: Klynveld Peat Marwick Goerdeler (Accounting Firm)
OEM: Original Equipment Manufacturer
PMBOK®: Project Management Body of Knowledge
PMI: Project Management Institute
PMO: Project Management Office
PMCM: Project Manager Competency Model
PRINCE: Projects in Controlled Environments
NPD: New Product Developments

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CHAPTER 1

SCOPE OF THE STUDY

1.1 INTRODUCTION

Project Management has become a way of life for many organisations aspiring to improve effectiveness and efficiency. The South African automotive industry is no different and employs project management methodologies throughout the industry. New product development, new model introductions and model year changes are a few examples of projects that utilise project management to successfully complete projects.

South Africa’s history of the automotive industry dates back to the 1920’s. South Africa is the largest automobile producer on the African continent, accounting for approximately 84% of all vehicles produced in 2003. Approximately 250 first tier suppliers and in excess of 300 second and third tier suppliers support this industry creating much needed employment for the South African economy (Eastern Cape Development Corporation, 2005).

The automotive industry in South Africa has undergone a rapid structural change as a result of policies which have not only liberalized imports, but have encouraged exports as well. (Black, 2001). In the period between 1995 and 2004 South Africa reduced tariffs by approximately 29%. (Eastern Cape Development Corporation, 2005). These policies have made the local market more lucrative to overseas automotive producers who export fully built-up units into the country. This means that local vehicle manufacturers that previously enjoyed tariff protection and reduced competition before 1994, are now exposed to a global market and face even greater challenges in their bids to remain competitively priced.
“As markets have become more global, more competitive and more volatile, organisations need to be more responsive to the needs of their customers” (Burnes, 2004). South African automotive manufacturers face ever increasing competition from overseas automakers in countries in the east; vehicle manufacturers based in China, India and Korea continue to pose a threat to the local market. According to Gavin Maile, a KMPG consultant, “…there seems to be broad consensus that imported vehicles represent a threat to the local automotive industry”. These finding were reported in a KPMG report published in 2011 (KPMG - South Africa, 2011). There are approximately 1 390 variants of cars available in South Africa, findings reported by Fin24.com, a business website (South Africa.info, 2008).

Over the past decade, the number of imported vehicles has doubled. In 1997 there were 37 manufacturers, offering 595 different models. Asian vehicles were introduced into the market for the first time in 1997. These vehicles introduced included: Mahindra, SsangYong, Kia, Hyundai, Daewoo and Tata. (South Africa.info, 2008).

Hyundai-Kia, the Korean automaker has developed a range of new cars and utilizes the latest technology producing vehicles. In this way, they are effectively rebranding their previous image of a low cost low quality supplier (KPMG International, 2012). The automaker’s success in the global arena has been based on rapid research and development cycles as well as an aggressive expansion strategy in collaboration with its suppliers. The Korean automaker is now the world’s fastest growing automotive company (KPMG International, 2012).

The automotive industry continues to face many challenges, which are not limited to overseas vehicle imports, but include environmental challenges, growing urbanization and shifting customer behavior, which calls for radical new approaches to future mobility (KPMG International, 2012).
“The Eastern Cape is known as the ‘Detroit’ of South Africa because of its coastal location, which allows for the easy access to global networks” (Eastern Cape Development Corporation, 2005). The automotive industry in the Eastern Cape is of national importance as it contributes to almost 40% of South African car sales. Sixty percent of car exports by unit volume are produced in the Eastern Cape alone. When the components industry is included, 26% of South African auto sector value added and 30% of employment is provided by the Eastern Cape Province (Eastern Cape Development Corporation, 2005).

South Africa’s automotive industry is one of the most important sectors in the manufacturing industry. It is a crucial contributor to South African manufacturing exports. The sector accounts for approximately 10% of South Africa’s manufacturing exports (South Africa.info, 2008). The South African government has identified the automotive industry as one of the key growth sector’s in the country. The government’s strategy for this sector is to predict an increase in vehicle production to 1.2-million units by 2020. At the same time, government has embarked on a strategy of promoting local content, providing special incentives to OEM’s which significantly increase the percentage of local content that is built into locally manufactured units. Increasing local content is important as it helps with job creation. OEM’s use local suppliers to manufacture parts for vehicles and these suppliers are commonly referred to as first tier suppliers. First tier suppliers in turn contract work out to second, third and even fourth tier suppliers if necessary. These tiered suppliers manufacture smaller components that would make up the completely assembled part (Brand South Africa Media Service, 2012). Suppliers often use local material to manufacture their parts, thus supporting further job creation in the local economy. Ford (Engine Plant), VW and General Motors South Africa (GMSA), account for R13.2 billion of purchased components annually from local suppliers, 40% of which is sourced locally, supporting a major industry of about 165 automotive component manufacturers (Eastern Cape Development Corporation, 2005).
OEM’s contribute to the GDP, and their parent companies invest in the development of locally based OEM’s. In 2008, Ford Motor Company of Southern Africa announced plans to invest more than R1.5-billion to expand its operations in South Africa for the production of Ford's next-generation compact pickup truck and Puma diesel engine. The new investment would be split between its assembly plant in Silverton, Pretoria and Port Elizabeth (South Africa.info, 2008).

General Motors (GM) South Africa, which is based in Port Elizabeth, was awarded a six year contract in 2005 to assemble and export the Hummer H3, resulting in a US$100-million investment in its Struandale Plant. In 2008, GM South Africa built a new multimillion-rand vehicle conversion and distribution centre and has invested another R481-million in its operations, upgrading its production and tooling facilities (South Africa.info, 2008). Volkswagen South Africa invested around R6-billion in new models, a new paint shop and a new truck and bus assembly plant between 2000 and 2008 (South Africa.info, 2008). The investments injected into locally based OEM’s result in larger projects that could be undertaken leading to possible job creation. However, local OEM’s can only receive additional projects based on their ability to prove that they are capable of competing with global competitors. In today’s competitive corporate environment, there is no complimentary allocation of projects and local companies need to optimise and improve their operations in order to remain globally competitive.

Although there are many research topics on project management success factors, Mishra, Dangayach and Mittal (2011) has identified that most of the research is based on organisations based in the western world. The above discussion coupled with Mishra et al. (2011) statement, provides compelling evidence as to why there is a need to identify factors influencing project success at automotive OEM’s in South Africa. The automotive sector in South Africa, specifically those located in the Eastern Cape, presents a unique opportunity to investigate the factors contributing towards project
success, thereby assisting senior management to emphasize factors that have the greatest influence on project success. This leads to a discussion of the investigation into the main problem of this study.

1.2 MAIN PROBLEM

Globalisation has led to increased project complexity and project managers face the difficult task of managing projects across local borders. This brings a new dimension to project management as project managers are now exposed to different cultures throughout the world and need to adapt to survive in today’s market. Building good relations internally is just as crucial as developing external relationships. This complexity has also led to increased cross functional team work as resources from all functional groups need to work closer together in order to achieve targets or meet deadlines.

In order to gain a competitive advantage, organizations/OEM’s are not only sourcing parts globally, but also exporting globally. This increased competition has opened the market for the customer to select vehicle brands that deliver good quality and are competitively priced, as well as competing with market trends, e.g., increased fuel efficiency and lower Carbon (CO2) emissions. Role players, who are better able to adapt and deliver to the market needs, have a strategic advantage over their competitors. Quoting Dieter Becker KPMG’s Global Head of Automotive section, “In 2004, fuel efficiency was forecast to rise among consumer purchase criteria; today, fuel efficiency is the number one consumer concern.” (KPMG International, 2011).

Although automotive OEM’s practice project management methodologies, there are some short comings by all project management practitioners that are noted by Charvat (2003). These short comings are listed below:

- abstract and high level.
- not functional or do not address crucial areas.
• Ignore the industry standards and best practices.
• Look impressive but lack real integration into the business.
• Use non-standard project conventions and terminology.
• Compete for similar resources without addressing this problem.
• Don't have any performance metrics.
• Take too long to complete because of bureaucracy and administration.

Another dimension affecting project management success that is overlooked, is the effect of organisational culture on successful project outcomes. “Clearly, more research measuring organisational culture and its relationship to organisational performance, and in particular its relationship to new product development projects, is necessary” (Belassi, Kondra, Tukel, 2007, p.22). Hassen (2010) also recommends that a study on the effects of organisational culture and organisation structure could further improve project implementation in firms.

The primary objective of this study is to identify the factors that contribute to project success at an automotive OEM in the Eastern Cape automotive cluster. More specifically, this study will identify the influence of organisational culture, organisational structure, supplier relationship, communication, leadership, the Project Manager, Functional Support and cross functional teamwork on project success. The following question can be formulated from the factors stipulated above.

“What factors contribute to project success at automotive OEM’s?"

1.3 SUB PROBLEMS/HYPOTHESES

To achieve the above primary objective the following secondary objectives will be pursued:
• to investigate the relationship between organisational culture on project success;
• to investigate the relationship between organisational structure on project success;
• to investigate the relationship between executive management support and project success;
• to investigate the influence of the Project Team on project success;
• to investigate the relationship between communication on project success;
• to investigate the relationship between suppliers and OEM’s and the effect it has on project success;
• to investigate the influence of the Project Manager on project success;
• to investigate the influence of support received from functional managers/supervisors on project success.

The following null hypotheses are formulated based on the research objectives:

$H_{01} = \text{Factors related to the project has no influence on project success.}$

$H_{02} = \text{Factors related to the project manager has no influence on project success.}$

$H_{03} = \text{Factors related to the project team has no influence on project success.}$

$H_{04} = \text{Factors related to the organisation has no influence on project success.}$

$H_{05} = \text{Factors related to the external environment has no influence on project success.}$

$H_{06} = \text{Factors related to tools and techniques has no influence on project success.}$

$H_{07} = \text{Factors related to the suppliers has no influence on project success.}$

**Figure 1.1** below depicts a graphical representation of the envisaged hypotheses to be investigated. The success factors have originated from the study of Belassi and Tukel (1996); Hyväri (2006) and (Mishra et al., 2011).
New factors have also been added. This is based on current literature reviewed as well as the experience of the author gained in the automotive industry.

**Figure 1.1**: Null Hypotheses Model - variables that have no influence on Project Success

**Source**: The factors selected for the study have been adapted from similar previous studies of Belassi and Tukel (1996); Hyvärı (2006) and (Mishra et al., 2011)

### 1.4 SIGNIFICANCE OF THE RESEARCH

What is a successful project? In the past, projects were deemed successful when they were completed within time, within cost and within performance (Kerzner, 2001). When a project is performed for an external customer, good customer relations become a fourth project constraint (Kerzner, 2001). Figure 1.2 below, overview of project management, shows the relationship between the four constraints.
Figure 1.2: An overview of project management.
Source: (Kerzner, 2001)

The above definition of project success was supported by many project management practitioners for almost two decades (Kerzner, 2001). Kerzner (2001) has developed a modified definition for project success which includes completion:

- Within the allocated time period.
- Within the budgeted cost.
- At the proper performance or specification level.
- With acceptance by the customer/user.
- When you can use the customer's name as a reference.
- With minimum or mutually agreed upon scope changes.
- Without disturbing the main work flow of the organization.
- Without changing the corporate culture.

According to Richman (2011, p.8), “The need for project management is becoming increasingly apparent in the world today”. The tools and methodologies provided by project management enable organisations to venture into new sectors of the market (Richman, 2011). New ventures could entail different capabilities and new services, thereby creating work.

In 2011, unemployment in the Eastern Cape was reported as being as high as 28.9 percent (GetNews, 2011). If automotive OEM’s are able to deliver their products faster to market and at the same time increase the degree of
local content built into locally manufactured vehicles, this could lead to job creation, or prevent further job losses in the automotive industry.

The significance of this research is to highlight factors having the greatest influence on the project success within an OEM. Recommendations based on the findings will be provided to enhance the organisation’s competitiveness in the market place. These results could possibly be used by suppliers or supporting industries to improve their rate of project success as well.

1.5 RESEARCH METHODOLOGY

The primary objective of this study is to identify the critical success factors of projects undertaken by an automotive OEM located in the Nelson Mandela Metropole. To achieve the research objective, the following research design objectives will be pursued:

- To conduct a secondary literature review.
- To collect data using a questionnaire.
- To design questions and instructions based on the secondary literature.
- To write an accompanying letter/request letter.
- To conduct a pilot study to test the questionnaire for clarity, reliability and validity.
- To improve the questionnaire based on the feedback received from the pilot study results.
- To choose the best method for distribution and return.
- To plan a strategy for dealing with non responses.
- To conduct tests for validity and reliability.
- To analyse the data by means of various statistical techniques.
- To interpret the findings and make recommendations to Senior Management.

Source: Adapted from (Collis and Hussey, 2009).
Collis and Hussey (2003, p47) refer to two main research paradigms or “philosophies”; namely positivist, which is also referred to as quantitative, and the second paradigm being phenomenological, which some researchers also refer to as qualitative.

Differences between the two paradigms are summarised in Table 1.1 below:

<table>
<thead>
<tr>
<th>Positivism/Quantitative tends to:</th>
<th>Interpretivism/Qualitative tends to:</th>
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<tbody>
<tr>
<td>Use large samples</td>
<td>Use small samples</td>
</tr>
<tr>
<td>Have an artificial location</td>
<td>Have a natural location</td>
</tr>
<tr>
<td>Be concerned with hypothesis testing</td>
<td>Be concerned with generating theories</td>
</tr>
<tr>
<td>Produce precise, objective, quantitative data</td>
<td>Produce rich, subjective, qualitative data</td>
</tr>
<tr>
<td>Produce results with high reliability but low validity</td>
<td>Produce findings with low reliability but high validity</td>
</tr>
<tr>
<td>Allow results to be generalised from the sample to the population</td>
<td>Allow findings to be generalised from one setting to another similar setting</td>
</tr>
</tbody>
</table>

**Table 1.1**: Features of the two main paradigms

**Source**: (Collis and Hussey, 2009)

### 1.6 SAMPLE SELECTION

The population in this study referred to employees at an automotive OEM in the Eastern Cape who use project management methodologies in their working environment. A link to a web-based questionnaire will be e-mailed to more than 100 employees, and a response rate greater than 30 percent will be required if the research is to be of any significance. More information will be provided on sampling in Chapter 3. Confidentiality to all the respondents will be guaranteed. The researcher will also contact the Human Resource and Legal Departments to comply with all company procedures. All ethical and legal issues will be addressed before the study commences. Follow-ups will be conducted to ensure a good response rate and clarity of the responses.
1.7 MEASURING INSTRUMENTS

A self-constructed measuring instrument will be used to measure the variables displayed in Figure 1.1. Cronbach Alpha and the reliability coefficient will be reported, based on the findings from the analyses of the data. The Likert Ranking Scale will be used in the questionnaire. The scale ranges from one (1) for Strongly Disagree to five or (5) Strongly Agree.

A Likert Ranking Scale is used when you need to allow respondents to give a more discriminating response. The Likert Scale turns the question into a statement and asks the respondent for their level of agreement or disagreement. Another advantage of the scale is that it is simple to both responder and researcher and takes up little space (Collis and Hussey, 2003). The anchoring scale in Table 1.2 below will be used in the questionnaire.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1.2: Anchoring Scale

1.8 KEY ASSUMPTIONS

It is assumed that the project success factors in the automotive industry can be identified and grouped to determine the factors having the greatest influence on project success. It is further assumed that all automotive OEM’s in the Eastern Cape region do follow some form of project management methodology for implementing projects.

There are certain factors that do not apply to the automotive industry in South Africa. It is also assumed that there are certain constraints in the automotive
industry that may not influence success in other organisations that utilise project management methodologies and tools.

It is also assumed that the political environment, together with the strong presence of trade unions in South Africa has an effect on project success. This makes South Africa unique compared to other countries that are more politically stable and do not have a strong presence of trade unions. The culture in South Africa and its organisations differs from other cultures across the world and has an influence on a project’s success.

1.9 DELIMITATIONS OF RESEARCH

The delimitations of the research study are as follows.

1.9.1 Organisation to be researched
The study focused on a single automotive OEM in the Eastern Cape Region. The sample will be derived solely from this source. A broader study involving more OEM’s across provinces might yield different results.

1.9.2 Geographic demarcation
The study is performed on one OEM located in the Eastern Cape Province of South Africa. Other Original Equipment Manufacturers (OEM’s) are excluded from the study.

1.9.3 Size of the organisation
The OEM employs more than 6000 employees. Results obtained from smaller or larger organisations may differ from the results obtained in this study.

1.9.4 Focus of the empirical research
The study focuses on factors that are seen to be effective in the South African context, specifically the automotive industry.
1.10 KEY CONCEPTS

**Effectiveness** – “The degree to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means ‘doing the thing right,’ effectiveness means ‘doing the right thing.’” (BusinessDictionary.com, n.d.).

**Organisational Culture** – According to Wagner III and Hollenbeck (2010), an organisation’s culture can be described as an “…informal, shared way of perceiving life and membership in the organisation that binds members together and influences what they think about themselves and their work”.

**Leadership** - DuBrin (2010) defines leadership as “…the ability to inspire confidence and support among the people who are needed to achieve organizational goals”.

**Original Equipment Manufacturer (OEM)** – The term Original Equipment Manufacturer can be defined as a producer or manufacturer that provides a product to its customers, who proceeds to modify or bundle it before distributing it to their customers (Webfinance Inc., 2012).

**First Tier Supplier** – Pycraft; Singh; Phihlela; Slack; Chambers; Johnston (2010) is of the opinion that a first tier supplier can be described as a supplier or customer who has an immediate relationship with an operation or final assembly manufacturer with no intermediary operations. Figure 1.3 below gives an illustration of the relationship between tiered suppliers and an OEM.
The treatise will consist of five chapters; the basic layout will be as follows:

Chapter 1: Introduction
In this chapter, a brief description of the research topic is provided. A clear problem statement is detailed and the significance of the research topic is discussed. Delimitations are stipulated and a brief explanation of the layout of the treatise and the research approach are defined.

Chapter 2: Literature review/theoretical framework
All literature reviewed is discussed in detail. There is a focus on Project Management and its importance. This chapter also reviews the theory and practice of Project Management and the factors contributing to project success.

•Chapter 3: Research design and methodology
This chapter explains which methodologies were available to the researcher at the time of the study. It explains in more detail, the different
methodologies, their purpose and justification for the researcher’s choice. This section details the research design and instruments used to gather the required data.

•Chapter 4: Research results
All empirical results are discussed in detail in this chapter. The results from the questionnaire are analysed using statistical software, which are put into perspective and summarised in Chapter 5. Conclusions and recommendations are provided in Chapter 5.

1.12 CONCLUSION

In this chapter the main problem and the sub-problems were defined. The delimitations of the study have been detailed, although, it must be noted that other delimitations might play a significant role in the results of the study. Key concepts used in the study were identified and discussed in order to give the reader a better understanding of the research topic. The significance of the research was discussed as well as the reasons for the selection of the research topic. A brief explanation of the research methodology to be followed was discussed. In Chapter 2 the discussion will focus briefly on project management methodology and best practice with a special emphasis on the factors influencing project success.
CHAPTER 2

LITERATURE REVIEW ON PROJECT MANAGEMENT AND FACTORS INFLUENCING PROJECT SUCCESS AT ORGANISATIONS

2.1 INTRODUCTION

An outline of the research paper was discussed in Chapter 1 and the main problem and sub-problems that need to be investigated, were also identified. Chapter 2 begins with a brief explanation of what a project is and provides a definition of project management. It then provides an overview of the importance of project management and a description of factors authors believe define project success. The main focus of this chapter however, will be based on the factors influencing project success and this will be accomplished by reviewing previous research findings. Previous studies conducted by researchers will provide the reader with a better understanding of the importance of the factors selected and how they influence project success.

2.2 DEFINITION OF A PROJECT

“A project is a temporary endeavour undertaken to create a unique product, service or result. The temporary nature of projects indicates a definite beginning and end.” (Project Management Institute Inc, 2008)

Another definition given by Steyn, Basson, Carruthers, du Plessis, Kruger, Pienaar, Prozesky-Kuschke, van Eck, Visser (2008) states that: “A project is any planned, temporary endeavor undertaken to create a unique product, service or other complete and definite outcome (deliverable) with-in a limited time scale and with limited resources – a limited budget. Projects normally
require the mobilization of resources from a number of different functions (or disciplines).

There are many definitions on what constitutes a project, but there are similar characteristics most authors agree on, and below are some of the characteristics identified by the authors.

### 2.2.1 Characteristics of Projects

Typical project characteristics are listed below:

1. need definition of when and where the project should begin and end,
2. defined as a unique endeavour,
3. likely to be a one-time program,
4. use resources e.g. time, money, effort, materials and facilities,
5. has a work scope that can be categorized into definable tasks,
6. often need a team approach, sometimes multi-disciplinary, and
7. follows a structure, plan and budget.

(Levine, 2002); (Method123 Ltd., 2003); (Wren, 2003).

### 2.3 WHAT IS PROJECT MANAGEMENT?

Lewis (1995, p6) defines “Project Management as the planning, scheduling, and controlling of project activities to meet project objectives”. The Project Management Body of Knowledge (PMBOK) defines project management as “…the application of knowledge, skills, tools and techniques to project activities to meet project requirements. Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing.”,

(Project Management Institute, 2004)

Kerzner (2001) describes project management with the following statement: “Project management is the planning, organizing, directing, and controlling of
company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy). Figure 2.1 below shows a typical project management process employed by organisations today.

![Project Management Processes](Image)

**Figure 2.1:** Project management processes

**Source:** (Crawford and Cabanis-Brewin, 2011)

### 2.4 IMPORTANCE OF PROJECT MANAGEMENT IN ORGANISATIONS

According to Malczyk (2011), corporate organisations have developed a completely new way of doing business; the new model hinges on the management of resources through project management. Due to rapid changes in society, technology and intensified competition, many
organisations have adopted a project management approach in dealing with ever-changing customer demands. The speed at which customers now demand goods has also placed a focus on how project management tools can be used to enable faster turnaround times. (Harvard Business School Press; Society for Human Resource Management, 2006)

Richman (2011) states that project management provides organisations with a structured approach to planning and managing projects successfully. All organisations need to focus their time and effort to ensure that they remain competitive. Project management provides a structured approach that can be used to track milestones and help identify inefficient business processes that prevent optimal performance of the organisation. All businesses have goals and objectives that need to be attained and project management can be employed as a tool that manages resources to obtain these objectives. The organisation’s level of growth and success in achieving these objectives is dependent on the efficient management of resources such as capital, time, money and scope of the project (Six Sigma Training Assistant, 2012).

Project management is also used to minimize or mitigate risks. During the planning phase of a project, possible risks are identified by all stakeholders. The project manager is then able to minimize the impact of these risks or create contingency plans in the event that the risk becomes a reality. Keyes (2009) concurs with this statement and states that although all problems will never be accounted for or eliminated, proper project planning will most certainly reduce the impact of problems encountered.

2.5 PROJECT SUCCESS DEFINED

It is important to define what constitutes project success and various organisations or institutions have their own views of what deems a project successful. Authors’ opinions on project success have also changed over the years as briefly mentioned in Chapter 1.
The following paragraphs will elaborate on these factors by providing insight from various authors’ findings concerning critical success/failure factors related to project management.

“Success is determined by how well the project performed against defined objectives and conformed to the management process outlined in the planning phase”. (Method123 Ltd., 2003) Heerkens (2002) is of the opinion that one of the variables that define project success is the ability of the project manager to meet the original targets of cost, schedule, quality and functionality. He also states that project efficiency or the management of the project needs to be seen as successful by all stakeholders, anyone influenced or affected in a negative manner will not perceive the project as being successful. Heerkens (2002) provides some criteria for evaluating the success of a project:

- The degree of disruption to the client’s operation.
- How effectively resources were applied.
- The amount of growth and development of project team members.
- How effectively conflict was managed.
- The cost of the project management function.

Heerkens (2002) further denotes the extent to which the project has fulfilled its intended purpose as another factor of project success. Heldman (2002) defines a successful project as one that meets or exceeds the expectations of the stakeholder. Atkinson (1999) is of the opinion that the factors of time, quality and cost although important, should not be the only factors used to measure project success. Atkinson (1999) basis his statements on the percentage of projects that still fail today. He also states that different projects have different criteria that are important for project success. Atkinson (1999) goes on to quote Struckenbruck’s (1987) ideology whereby stakeholders should define the important success factors for a project. Struckenbruck (1987) as cited in Atkinson (1999) suggests that the four most
important stakeholders are the project manager, top management, customer-client, and the team members. Atkinson (1999) also lists the resultant product and the benefits to the stakeholders as two additional criteria for measuring project success. Keyes (2009) also lists the project success factors of Hyvärä (2006) who states that the concept of project success is still unclear in the project management literature. In particular, Hyvärä (2006) established that project success in terms of an organisational context was rather poorly defined.

Hyvärä (2006, p.33) conducted a study to examine the success factors of project management in different organisational conditions. Her study was divided into five factor groups, namely factors (related to the project, the project manager, the project team, the organization, and the environment). Respondents were asked to select the three main factors in each group that they considered to be most critical to the successful implementation of a project in their environment. The findings are listed below. The factors are ranked in order from scores with the highest to the lowest frequency, e.g. in the category, factors related to the project, respondents believed that clear goals/objectives was the most important factor for success to the project.

2.6 PROJECT FACTOR GROUPS

2.6.1 Factors Related to Project

- Clear goals/objectives.
- End-user commitment.
- Adequate funds/resources.

2.6.2 Factors Related to the Project Manager/Leadership

- Commitment.
- Ability to co-ordinate.
- Effective leadership.
2.6.3 Factors Related to Project Team Members

- Commitment.
- Communication.
- Technical background.

2.6.4 Factors Related to the Organization

- Top management support.
- Clear organization/job descriptions.
- Project organization structure.

2.6.5 Factors Related to the Environment

- Client.
- Technological environment.
- Sub-contractors.

Source: Adapted from (Hyväri, 2006), Number of Success/Failure Factors

Keyes (2009) also provides a list of successful factors based on research conducted by the Standish Group. The Standish Group’s “top ten” critical success factors are listed below:

- User involvement.
- Executive management support.
- Clear business objectives.
- Optimizing scope.
- Agile process.
- Project manager expertise.
- Financial management.
- Skilled resources.
- Formal methodology.
- Standard tool and infrastructure.

Source: Standish Group reasons for project success (Keyes, 2009, p.65)
Belassi and Tukel (1996) developed a list of critical success factors based on literature reviewed by different authors between 1976 and 1987. The results are listed in Table 2.1 below.

<table>
<thead>
<tr>
<th>Source: (Belassi and Tukel, 1996)</th>
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<tbody>
<tr>
<td><strong>Table 2.1: Seven different lists of critical success factors developed in their literature</strong></td>
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</thead>
<tbody>
<tr>
<td>Define goals</td>
<td>Make project commitment known</td>
<td>Project summary</td>
<td>Project manager’s competence</td>
<td>Clear goals</td>
<td>Top management support</td>
<td>Project objectives</td>
<td></td>
</tr>
<tr>
<td>Select project organizational philosophy</td>
<td>Project authority from the top</td>
<td>Operational concept</td>
<td>Scheduling</td>
<td>Grad commitment of project team</td>
<td>Client consultation</td>
<td>Technical uncertainty</td>
<td></td>
</tr>
<tr>
<td>General management support</td>
<td>Appoint competent project manager</td>
<td>Top management support</td>
<td>Control systems and responsibilities</td>
<td>On-site project manager</td>
<td>Personnel recruitment</td>
<td>Policies</td>
<td></td>
</tr>
<tr>
<td>Organize and delegate authority</td>
<td>Set up communication and procedures</td>
<td>Financial support</td>
<td>Monitoring and feedback</td>
<td>Adequate funding to completion</td>
<td>Technical skills</td>
<td>Community involvement</td>
<td></td>
</tr>
<tr>
<td>Select project team</td>
<td>Set up control mechanisms (schedule, etc.)</td>
<td>Logistics requirement</td>
<td>Continuing involvement in the project</td>
<td>Adequate project team capability</td>
<td>Client acceptance</td>
<td>Schedule deviation</td>
<td></td>
</tr>
<tr>
<td>Allocate sufficient resources</td>
<td>Progress monitoring</td>
<td>Facility support</td>
<td>Assemble initial cost estimates</td>
<td>Monitoring and feedback</td>
<td>Financial contract legal problems</td>
<td>Program problems</td>
<td></td>
</tr>
<tr>
<td>Provide for control and information communications</td>
<td>Market intelligence (who is the client)</td>
<td>Minimum start-up difficulties</td>
<td>Communication</td>
<td>Implement problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require planning and review</td>
<td>Project schedule</td>
<td>Planning and control techniques</td>
<td>Task (vs. socio) orientation</td>
<td>Characteristic of the project team leader</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive development and training</td>
<td>Manpower and organization</td>
<td>Absence of bureaucracy</td>
<td>Power and politics</td>
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</tr>
<tr>
<td>Management and organization</td>
<td>Acquisitions</td>
<td>Environment events</td>
<td>Urgency</td>
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<tr>
<td>Information and communication channels</td>
<td>Project review</td>
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</tbody>
</table>
2.7 DETERMINANTS OF PROJECT SUCCESS IN ORGANISATIONS

2.7.1 Factors related to project

2.7.1.1 The project should have clear goals/objectives if it is to be successful
Keyes (2009) is of the opinion that project objectives should be clearly defined and understood by everyone within the organisation. The objectives should be made clear at the beginning of the project, key milestones should be generated from these goals and the team’s progress should be measured against these goals and objectives (Keyes, 2009). Using these objectives as a measurement tool can help with identifying problems at an early stage and act as a lever for justification of resources to bring the project in line with its original timeline or objective (Keyes, 2009).

2.7.1.2 The project should have a clearly defined scope
As with goals and objectives, a clearly defined or well thought out scope involving all stakeholders is essential. Kerzner (2001) states that scope changes must be kept to a minimum, as failing to do so not only destroys the morale of team members working on the project, but could ultimately lead to a failed project (Kerzner, 2001).

2.7.1.3 Projects with a realistic schedule have a better chance of being successful
Projects often fail due to project managers being overly optimistic when providing completion dates to clients. The reasons for optimistic timing could be attributed to various reasons:

- The client pressurizes the project team to commit to unrealistic timing for various reasons. The project manager might not want to offend the client and accepts the timing.
- Inexperience of the project manager or team.
- Desperation for the client’s business.
- Competition and globalisation, etc.
Project managers often view the project plan as a perfect model, in practice though this is not often the case as there are many factors that can influence a project (Kliem, 2004). The project manager’s experience plays a crucial role in identifying factors that could influence the project and these factors should be taken into account when drafting the project plan. Kliem (2004) also states that as the environment changes, so should the plan. In reality though, this does not happen in most instances and the unrealistic schedule is imposed on the project team often leading to conflict within the team. At this stage, the project manager finds himself in a difficult situation and has to make tough decisions which demoralise the team (Kliem, 2004). Based on the literature review of the authors, the first hypothesis was formulated:

**H₁: Factors related to the project has an influence on project success.**

### 2.7.2 Factors related to the Project Manager/Leadership

Kerzner (2001) states that the program manager’s ability to lead the team effectively, is an essential determinant of a program’s success. Keyes (2009) is of opinion that interpersonal skills are some of the most important skills a project manager should possess. Furthermore, project managers should be comfortable with dealing with all levels of key role players in the project (Keyes, 2009). This statement is supported by Kerzner (2001) who states that project managers need to deal effectively with managers and supporting personnel across functional lines, and this needs to be done with little or no formal authority as project managers often rely on personnel that do not report directly to them. Project managers need various skills in order to survive in today’s competitive industries, Kerzner (2001, p.175) lists some of the characteristics a project manager needs to manage effectively:

- Clear project leadership and direction.
- Assistance in problem solving.
- Ability to handle interpersonal conflict.
- Facilitating group decisions.
• Capability to plan and elicit commitments.
• Ability to communicate clearly.

Kerzner (2001, p.175) also points out the desired personal traits supportive of the skills listed above:
• Project management experience.
• Flexibility and change orientation.
• Charisma and persuasiveness.
• Organisational skills and discipline.

Kliem (2004) is of the opinion that industry has no need for project managers, but rather project leaders. Project management methodologies and principles, although important, are only tools utilised by people to help them complete their jobs, the real focus should be on the people, or the softer side of project management (Kliem, 2004; Clements and Gido, 2006; Keyes, 2009).

According to Keyes (2009), good project managers should possess technology and business knowledge, as well as having good judgment, negotiation and communication skills. Opfer, Kloppenberg and Shirberg (2002) as cited by Kliem (2004) state that project leadership also requires strength in interpersonal skills, especially in negotiation and conflict management. Kliem (2004) states that few projects finish on time, within budget or even meet customer requirements. The main reason for this is the failure to manage the people side of project management.

Kliem (2004) cites research conducted by a major consulting company, Keane, who have developed the Project Manager Competency Model (PMCM). This model is used to identify clusters of project management skills and behavior that are deemed essential. The findings of the PMCM describes two attributes to be of particular importance: the ability to negotiate and conflict management (Kliem, 2004).
2.7.2.1 Effective leadership

Kliem (2004) also cites work done by Einsiedel (1998) who identified five qualities that project managers should possess in order to lead effectively, these are:

- credibility,
- creative problem solving,
- tolerance for ambiguity,
- flexible management style and
- communication skills.

According to Ryan (2009) there are three important skills that are required to be an effective leader. They are listed as follows:

- these leaders are driven by an inspiring vision of success,
- effective leaders are excellent communicators and
- they display superior judgment.

Clements and Gido (2006) describe leadership as the ability to get work done through others, in order for team members to succeed in their goals, and it is crucial that a project manager inspires his/her workforce. A good leader knows and understands the motivation of team members and creates a supportive environment that encourages not only teamwork, but an energised environment where team members are expected to achieve more than what is required of them (Clements and Gido, 2006). According to Kerzner (2001), team motivation has been identified as one of the factors having the greatest influence on overall project success.

Project leaders often assume complete control when handling projects (Kliem, 2004). Depending on the nature of the project manager, this could have one of two outcomes, either the individual assumes a domineering role who uses power to control negatively and embraces “slash and burn” behaviour, or the individual embraces a culture of motivating people positively (Kliem, 2004). The more effective approach would be to motivate
people positively. Tinnirello (2001) states that people who are not emotionally committed to the vision of the project will not deliver one hundred percent of their full potential. Motivating people becomes more complex in matrix type organisations where project managers lack control of people belonging to functional groups (Tinnirello, 2001).

2.7.2.2 Ability to co-ordinate
Project managers are often referred to as project leaders, project coordinator’s and even project administrators (Hill, 2004). Project management is not a simple a task as perceived by many parties. It often involves new approaches to doing things, working with difficult customers or staff members and coordinating tasks between project members who are often working on more than one task at a time. When you take into account the changing nature of today’s business world and the complexity of working in a global environment, the coordinating function/skill a project manager possesses, becomes an essential tool for surviving in the corporate jungle.

Crawford and Cabanis-Brewin (2011) list some of the coordination functions performed by a fully functioning project management office. These include coordination of the project/program/organisational budgeting processes, procurement, inventory control, capital equipment funding and allocation and suppliers (Crawford and Cabanis-Brewin, 2011, p.204). As can be seen from the coordination functions listed above, the ability of the project manager to master his/her coordination skills is essential if a project is to be successful. Davidson (2000) warns that co-ordination of tasks on some projects are crucial, as one event which is not executed to the planned schedule could place the entire project at risk.

2.7.2.3 Commitment
Commitment is something that is earned and must be won. It is something that must be planned for and managed. The absence of commitment, not the poor selection of technology, is often the primary cause of strategy failure on
a project (Charvat, 2003, p.22). If a project is to be successful, it needs team members who are committed to achieving the project goals to ensure the project is successful. Project leaders will only gain commitment from team members if they portray enthusiasm and commitment to the project.

2.7.2.4 Efficient management of resources

Cole and Barker (2009) state that the resources managed by project managers should not only focus on financial items, but all resources linked to the success of the project, especially the management of people. Managing resources includes, but is not limited to what was originally agreed to at the beginning of the project. Often, resources are needed to relieve constraints or bottlenecks and project managers need a complete overview of the project to ensure that the correct resources are at the right place and time when required (Cole and Barker, 2009).

Hill (2004) suggests that an agreement should be reached between all stakeholders as to how to co-ordinate and collaborate on the sharing of resources as well as the extent of the participation required. According to Hill (2004), the project manager is responsible for the establishment of all activities of the life cycle of the project and this includes the management of all available resources.

2.7.2.5 Emotional intelligence

DuBrin (2010) defines emotional intelligence as an ability to understand your own feelings, and in addition to have empathy towards other people’s feelings. He also states that this ability enhances your quality of life, and helps you to connect with people and understand their emotions. Kliem (2004) is of the opinion that good leaders display good emotional intelligence, which is an ability that enhances both self-awareness and empathy, and results in effective communication.
Kliem (2004) states that too many project managers lack emotional intelligence, and as a result this leads to poor communication between the project manager and the people assigned to the project. Kliem (2004) also states that body language is an important factor that project managers need to be aware of. Kliem (2004) refers to the work of Goleman (1995) who noted that very often, “the incongruity between words and body language can reveal the emotional truth about another person”. According to DuBrin (2010), there are four key factors that define emotional intelligence, these are:

**Self-awareness**
DuBrin (2010) states that self awareness is the most essential factor for emotional intelligence. Self awareness is defined as the ability to understand you own emotions and how they affect others around you. DuBrin (2010) is of the opinion that effective leaders are always seeking feedback to understand how they can improve the effect they have on others.

**Self-management**
Self-management refers to the ability of an individual to control his/her emotions. DuBrin (2010) also states that your actions should be honest and you should act with integrity at all times.

**Social awareness**
Social awareness is described as being aware of the emotions of others and showing that you care, and possessing intuition about office politics in the organisation (DuBrin, 2010).

**Relationship management**
As highlighted earlier in the chapter, project managers need to have good interpersonal skills, DuBrin (2010) is of the same opinion. DuBrin (2010) further states that leaders need to build good relationships and have the skills to solve or prevent conflict thereby increasing his/her network of supporters.
2.7.2.6 Situational Leadership

DuBrin (2010) describes situational leadership as the leader’s behaviour in relation to the competency of the group members working under the leader.

![Situational Leadership Diagram](http://elmundopequeno.wordpress.com/2010/10/03/situational-leadership/)

**Figure 2.2:** Situational Leadership diagram showing leadership style vs employees’ development level

**Source:** [http://elmundopequeno.wordpress.com/2010/10/03/situational-leadership/](http://elmundopequeno.wordpress.com/2010/10/03/situational-leadership/)

Figure 2.2 above shows how the leader has to adapt his leadership role in accordance with the level of commitment and competency of the individual working on the task (DuBrin, 2010). Why is situational leadership important for project success? Projects, as mentioned earlier, are not only based on the traditional tangible factors of the past, but involve human beings, and as such, the better the leader is able to support his/her subordinates, the better the chances of the project being completed successfully.

It is therefore hypothesised that:

**H₂:** Factors related to the project manager influences project success.
2.7.3 Factors related to the project team

Cole and Barker (2009) state that one of the factors influencing project success are the people in your team and how well they perform. They further state that project managers should have excellent interpersonal skills if they want to succeed in their projects. One of the project manager’s most challenging duties is the effective building of relationships between all team members working on the project (Cole and Barker, 2009).

According to Kerzner (2001), in order for a team to be effective and productive, they should display the following behaviours and characteristics:

- They should demonstrate membership self-development.
- Team members should demonstrate the potential for innovativeness and creativity.
- Communicate effectively.
- Be committed to the project.

Project managers should strive to build the best possible team with the labour resources available to them, Cole and Barker (2009) state that this is one of the most critical factors influencing project success.

2.7.3.1 Technical background of project team

Cole and Barker (2009) state that acquiring the right people to be involved in a project, is very important. They are also of the opinion that people chosen to work on a project need to have the proper set of skills and experience for the project undertaken. Keyes (2009) further reiterates that project managers also need to take cognisance of when a particular skill is needed. Authors Cole and Barker (2009) and Keyes (2009) state that softer skills are just as important as the technical skills, and therefore project managers need to consider the team synergy by identifying personalities that work well together in a team. Choosing team members that prohibit communication, team work and the general psyche of the team could influence the project negatively.
2.7.3.2 Commitment of the team

In Table 2.2 below, Kerzner (2001) identifies commitment as one of the key characteristics of effective teams.

Table 2.2: Team Effectiveness – Ineffectiveness Indicator

<table>
<thead>
<tr>
<th>EFFECTIVENESS–INEFFECTIVENESS INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Effective Team's Likely Characteristics</strong></td>
</tr>
<tr>
<td>• High performance and task efficiency</td>
</tr>
<tr>
<td>• Innovative/creative behavior</td>
</tr>
<tr>
<td>• Commitment</td>
</tr>
<tr>
<td>• Professional objectives of team members coincident with project requirements</td>
</tr>
<tr>
<td>• Team members highly interdependent, interface effective</td>
</tr>
<tr>
<td>• Capacity for conflict resolution, but conflict encouraged when it can lead to beneficial results</td>
</tr>
<tr>
<td>• Effective communication</td>
</tr>
<tr>
<td>• High trust levels</td>
</tr>
<tr>
<td>• Results orientation</td>
</tr>
<tr>
<td>• Interest in membership</td>
</tr>
<tr>
<td>• High energy levels and enthusiasm</td>
</tr>
<tr>
<td>• High morale</td>
</tr>
<tr>
<td>• Change orientation</td>
</tr>
<tr>
<td><strong>The Ineffective Team's Likely Characteristics</strong></td>
</tr>
<tr>
<td>• Low performance</td>
</tr>
<tr>
<td>• Low commitment to project objectives</td>
</tr>
<tr>
<td>• Unclear project objectives and fluid commitment levels from key participants</td>
</tr>
<tr>
<td>• Unproductive gamesmanship, manipulation of others, hidden feelings, conflict avoidance at all costs</td>
</tr>
<tr>
<td>• Confusion, conflict, inefficiency</td>
</tr>
<tr>
<td>• Subtle sabotage, fear, disinterest, or foot-dragging</td>
</tr>
<tr>
<td>• Cliques, collusion, isolation of members</td>
</tr>
<tr>
<td>• Lethargy/unresponsiveness</td>
</tr>
</tbody>
</table>

Source: (Kerzner, 2001)

Cole and Barker (2009) state that project managers should strive for everyone to be involved from the start of the project. Project managers have the duty of empowering everyone to feel comfortable and to make members of the project feel as if they are a valuable part of the team. Members who show reluctance to participate should be re-assured of their valuable contribution to the team (Cole and Barker, 2009).

2.7.3.3 Cooperation among members

Kliem (2004) and Cole and Barker, (2009) state that project teams are conflict prone, which is part of every project manager’s daily life. Kerzner (2001) states that it is imperative for project managers to recognise the early warning signs of dysfunctional conflict, understand the people in the team, as well as the internal politics and the culture of the organisation which will help the project manager deal with any conflicts which may arise. Kerzner (2001)
is of the opinion that the earlier the project manager recognises conflict within the team, the more effectively he/she is able to manage the detrimental effects of conflicts which could influence the project’s performance. Kerzner (2001, p176) recommends “effective project planning, contingency planning, securing of commitments and involving top management to help minimise conflict within teams”.

2.7.3.4 Ability to handle unexpected crisis and deviations from plan
All projects involve risk, quoting Cole and Barker (2009, p125): “There are only three certainties in life: death, taxes and problems on projects”. Cole and Barker (2009) state that crises create perfect opportunities for motivating team members, and for the achievement of sustainable success in projects. The project manager is also presented with an opportunity to showcase his talents for dealing with crises and in this way builds goodwill and respect with team members (Cole and Barker, 2009).

According to Davidson (2000), one of the key characteristics of a good project manager is the ability to handle crisis. The project team is influenced by the actions of the project manager, and to that effect, the more skilled and experienced the project manager is, the better he/she is able to focus the team’s efforts on the root cause of the problem.

2.7.3.5 Effective monitoring and feedback
Davidson (2000) is of the opinion that effective monitoring of the project is one of the traits a project manager should possess if they are to be successful in project management.

The first step is to identify what needs to be monitored and this is shown in Figure 2.3 below. Identifying risks that could influence the project and then planning for responses to mitigate those risks will help towards steering projects to successful completion. Cooper, Grey and Raymond (2005), state that communication and consultation with all project stakeholders is critical for achieving the most broadly accepted project deliverables. According to
Cooper et al. (2005), regular feedback is an important component of proper communication in projects, as it keeps everyone informed, and helps prevent any unexpected surprises.

Figure 2.3: The project risk management process

Source: (Cooper et al., 2005)

2.7.3.6 Proper communication between members

Thomsett (1990) states that the project’s success, and the team’s sense of success associated with working with the project manager, are influenced by the project manager’s ability to communicate effectively. In Biafore’s (n.d.) web article on “Improving project performance by sharing information”, she stipulates that usually people gain power by withholding information, but in project management, the real power lies with the sharing of information, and the result is the successful completion of a project. The benefits of good communication are provided in Table 2.3 below.
<table>
<thead>
<tr>
<th>Benefit</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved focus on the goal</td>
<td>Clearly defined goals and restrictions that are effectively communicated at the start of the project allow team members to focus on the tasks that matter.</td>
</tr>
<tr>
<td>Increased productivity</td>
<td>Team members are more effective when information is readily available. Effectiveness of team members is also increased as there is no duplication of effort.</td>
</tr>
<tr>
<td>Fewer errors</td>
<td>Team members who are well informed generate fewer mistakes and are able to easily identify mistakes and collaborate to fix them.</td>
</tr>
<tr>
<td>Better decisions</td>
<td>Good decisions can only be made by well-informed project personnel and stakeholders. Well communicated information allows team members to mitigate risks/threats and also take advantage of opportunities that may arise.</td>
</tr>
<tr>
<td>Continuous improvement</td>
<td>By studying information about every project that a company executes, project teams can copy the best practices while avoiding the mistakes of previous projects.</td>
</tr>
<tr>
<td>Better project management</td>
<td>Distributing information to all team members at the right time, allows project managers to focus on managing projects proactively. Information flow not only guides it to a successful completion, but engenders a collaborative environment that builds teamwork and increases job satisfaction.</td>
</tr>
</tbody>
</table>

Table 2.3: The benefits of collaboration

Source: Adapted from (Biafore, n.d.)

Lines of communication between team members should remain open (Thomsett, 1990). Conflicts between team members on a project need to be resolved immediately before tension between team members escalates and influences the project deliverables. Cole and Barker (2009) state that project managers should take responsibility for defining how the project deliverables
are to be achieved. This should be clearly communicated and doing this will allow the team to focus on the tasks at hand. If this is not done, it might result in friction between team members and the result would influence the successful outcome of the project (Cole and Barker, 2009).

It is therefore hypothesised that:

\[ H_3 = \text{Factors related to the project team has an influence on project success.} \]

### 2.7.4 Factors related to the organisation

#### 2.7.4.1 Top management support

Recent studies (Belassi and Tukel, 1996; Hyväri, 2006;; Mishra et al., 2011) have shown that one of the most important contributors to project success is executive or top management support. Keyes (2009) stipulates that top management support is essential, and that managers should have a global view of the project. They are also responsible for ensuring that project managers have adequate funds to deliver on project deliverables and support in responding to crises or unexpected developments hampering project success (Keyes, 2009). Charvat (2003) is of the opinion that executive commitment and sponsorship are vital for effective management of projects, as without this support, projects are doomed for failure from the start. Kerzner (2001) makes similar references to the support of top executives being a critical factor in determining continuous project success.

#### 2.7.4.2 Structure of organisation

According to Inkeri and Imatti (2003), the way we work is changing and work is becoming increasingly flexible as organisations are faced with multiple projects. In order to cope with these changes, organisations need to adopt structures that can cope with this flexibility.
Keyes (2009) is of the opinion that a standard technology infrastructure which includes operational and organisational protocols is essential for project success. Due to the changing environment and business of today, infrastructure must not only be understood, but regularly assessed and improved upon to remain competitive (Keyes, 2009). Kerzner (2001) is of the opinion that in the classical structure of today’s organisations, projects generally have a tendency of not being completed on time. Appendix 3 shows the disadvantages of the traditional (classical) organisation as provided by Kerzner (2001).

2.7.4.3 Functional manager’s support
The support received from the functional manager is crucial for project success. The only resource the project manager really controls is the projects budget, and in some instances, this might not be the case. Kerzner (2001) states that most resources are controlled by functional managers, line managers or resource managers, project managers simply co-ordinate tasks across different functional divisions. In some cases, self-interested managers hold onto their top performers, knowingly jeopardising projects even when their skills and experience are desperately needed elsewhere (Cole and Barker, 2009).

Kerzner (2001, p7) is of the opinion that successful project management is strongly dependent on:

- A good daily working relationship between the project manager and those line managers who directly assign resources to projects.
- The ability of functional employees to report vertically to their line manager at the same time that they report horizontally to one or more project managers.

2.7.4.4 Monitoring committee
At the organisation under review, the use of an “external” monitoring committee is used to ensure not only transparency, but a dual escalating
function from both the product management team as well as the functional team. The monitoring committee in this study acts as a monitoring committee and as source of help in case “project managers” or spokespersons are not able to resolve problems within their working teams. Problems not resolved at the monitoring committee meetings are escalated to top management level for a decision request, support or cancellation of the project if it is no longer feasible. The monitoring committees play a crucial role in the automotive industry and hence were considered as a critical success factor in this study.

2.7.4.5 Clear work definition
Kerzner (2001) states that poor work definitions create cost control problems for projects and this is especially true for team members working in the lower levels of the organisation. Well defined work definitions could possibly make pricing and estimating easier if they were established before project initiation (Kerzner, 2001). In studies conducted by Mishra et al. (2011), work definition was identified as the most critical factor towards project success under factors related to the organisation. Richman (2011) is of the opinion that clear project definitions coupled with a comprehensive set of objectives are critical for project success. Richman (2011) further states that if the base work and objectives are not in place, is unrealistic and has not received buy-in from all concerned parties, the project could be in trouble before start-up.

2.7.4.6 Clear organisation/job descriptions
According to Kerzner (2001), companies operating in a matrix structure, and automotive industries typically work in this environment, should have job descriptions, responsibilities and the directives from top management communicated to all personnel working in the organisation. As far as the project manager is concerned, Kerzner (2001) states that they especially need to understand their own job description, especially their degree of authority within the organisation. Further to this, special or aggregated projects create complexity and conflict, especially over long durations. In these projects, different responsibilities, procedures and job responsibilities may be required. It is the responsibility of the project manager to provide
detailed job descriptions, clearly defining the input required from the team members working on the project, and this is an absolute necessity, especially since people from different divisions need to collaborate and share resources (Kerzner, 2001). Poorly defined job descriptions are one of the greatest time consumers in project management (Kerzner, 2001).

2.7.4.7 Organisational Culture
A large contingency of projects in the automotive sector involves New Product Development. Belassi et al. (2007) states that several studies have addressed the determinants of general project performance, but there is a lack of attention and investigation of the effect that organisational culture has on New Product Development.

Gray (2001) is of the opinion that few managers can dispute the fact that the organisational climate influences the performance of workers. He further reiterates that leadership attitudes often influence the subordinates approach to his or her work. Gray (2001) commented on McGregor’s (1985) studies which showed that people respond to the way they are treated. Managers who adopt the “carrot and stick” approach towards team members often get the work done, but team members are inclined to do the bare minimum to gain the reward. On the other hand, team members who were trusted by their managers showed higher degrees of team commitment and often took initiative in the work undertaken (Gray, 2001).

There are many factors related to organisational culture that could influence projects and for the purpose of this study and the constraint on the length of the treatise, the author will focus on two organisational factors: political aspects and the degree of autonomy.

2.7.4.7.1 Political Aspects
Kliem (2004) states that project managers should consider the explicit factors involved with a project, and the implicit factors as well. According to Kliem (2004), very often, project managers ignore the politics, mores and values of
the organisation, often resulting in project failure. Kliem (2004) also warns against sticking to stakeholders from a formal hierarchy as some stakeholders possess tremendous influence, politically or technically. Project managers must clearly distinguish the tangibles and intangibles influencing the project, failing which, the chances of the project being completed successfully diminishes significantly (Kliem, 2004).

Keyes (2009, p.73) quoting Shtub (1994) recommends a series of steps that serve to neutralise political gamesmanship:

1. Identify persons who are opposed to the project.
2. Determine why they feel the project isn’t to their advantage.
3. Meet with anyone who directly attacks you or the project.
4. Place all agreements and progress reports in writing.
5. Speak directly and truthfully.
6. Distribute a memo to stakeholders, including the opposition, to clarify all rumours.
7. Be prepared to defend your actions and backup your statements with rationale arguments.

**Source:** Keyes (2009)

### 2.7.4.7.2 Degree of autonomy

**Definition:**

“A degree or level of freedom and discretion allowed to an employee over his or her job. As a general rule, jobs with high degree of autonomy engender a sense of responsibility and greater job satisfaction in the employee(s).”

**Source:** (BusinessDictionary.com, 2012)

Kerzner (2001) states that usually, a project manager should have more authority than his responsibility calls for. The authority of the project manager is directly related to the degree of risk associated with the project, and the greater the risk, the greater the amount of authority (Kerzner, 2001). The authority of the project manager and team members should be made clear at
the beginning of the project. This will help prevent delays and help all members make decisions based on the authority granted to them, and they will not be held accountable for decisions which they do not have authority to enforce or influence (Kerzner, 2001).

Failure to establish authority relationships can result in:

- Poor communication channels.
- Misleading information.
- Antagonism, especially from the informal organization.
- Poor working relationships.
- Unexpected surprises for the customer.

The following are the most common sources of power and authority problems in a project environment:

- Poorly documented or no formal authority.
- Power and authority perceived incorrectly.
- Dual accountability of personnel.
- Two bosses (who often disagree).
- The project organization encouraging individualism.
- Subordinate relations stronger than peer or superior relationships.
- Shifting of personnel loyalties from vertical to horizontal lines.
- Group decision-making based on the strongest group.
- Ability to influence or administer rewards and punishment.
- Sharing resources among several projects.


Against this background, the following hypothesis is formulated:

**H₄:** Factors related to the organisation has an influence on project success.
2.7.5 Factors related to the external environment

According to Heldman (2002), external environmental factors are those factors outside of the project, and might exert a major influence of the successful completion of the project. The contribution made by Dr. Lionel J. Smalley in Kerzner’s 2001 book called, *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, uses the elimination of apartheid in South Africa as a prime example of a country undergoing not only political changes, but social reform, legislative changes and economic uncertainties. Through all these changes, projects that continued during this phase were still expected to be completed within the iron triangle constraints of time, quality and cost (Kerzner, 2001). Figure 2.4 below portrays an interpretation of the macro-economic environment businesses currently operate in. The outer circle shows the macro factors which include, technological, economic, social, political and international conditions which affect business.

![Figure 2.4: The macro environment of business](Source: Starling, 1996.)
2.7.5.1 Political environment

The political environment is influenced by government laws, regulations and legal issues that set the formal rules within which an organisation must operate. Government ownership of industry and their attitude towards monopolies and competition could influence project success as governments might be biased by awarding contracts to organisations that benefit their needs. Political party views, political stability and alignments at local level, as well as economic blocks like the European Union (EU), NATO, North America Free Trade Association (NAFTA) and New Partnership for Africa Development (NEPAD) etc. could also influence the organisation. Regulations stipulated by these economic blocks influence regulations, as well as incentives for countries belonging to these “blocks”. Source, adapted from (Steyn and Schmikl, 2009).

The project environment is always changing and recent studies have shown that internal factors as well as external factors influence project success. According to Morris (2006), many projects require political support due to internal issues within organisations. This statement was made with reference to the construction industry, but the same statement could possibly hold true for the automotive industry as the projects undertaken have a direct influence on the communities who are supported by the automotive sector.

Trade unions also influence projects undertaken by the automotive industry as strikes have a negative impact on current business at OEM’s, as well as the establishment of new business in countries that are deemed unstable. Investors are hesitant to establish business in countries that are politically unstable - a prime example is Zimbabwe, where major companies have relocated their businesses elsewhere due to the unrest in that country. Project managers need to take into account any possible threats from contractors/sub-contractors that are located in politically unstable countries. First or second tier suppliers located in these regions could impact projects if these suppliers are not able to supply components to support projects.
2.7.5.2 Economic environment
Kerzner (2001) states that during different economic conditions, project management styles may differ. During times of favourable economic conditions, change methodologies with regards to project management are slow, but during times of economic recession, organizational change takes place at a staggering pace as organisations cut costs and improve effectiveness. Kliem (2004) states that part of a project manager’s job is to consider external factors like inclement economic conditions and a downturn in employment.

Economic factors affect the cost of operations, as well as the purchasing power of potential customers. Gross Domestic Product (GDP) and per capita income influence consumer spending. Exchange rates, interest rates and repo rates affect the economic climate of a country and thus the disposable income of individuals. The economic climate also influences customer trends as people with tight budgets choose to:

- buy cheaper vehicles,
- use public transport,
- join lift clubs to reduce travelling costs or
- purchase vehicles that are incentivized or have lower fuel consumption and people might consider the purchase of small motorcycles to reduce fuel costs.

Energy costs, transportation costs as well as raw material and labour costs also influence project success, especially projects that are drawn out over several years. Changing economic conditions could influence pricing of products or costs of materials and labour that was not planned for so therefore, the project could overrun its allocated budget.

2.7.5.3 Social environment
Ndiritu and Crawford (2003) suggest that African cultural values are not based on the economic rationality of the west. Therefore some of the
techniques proposed by western authors may be inappropriate and could result in project failure in Africa. According to Ndiritu and Crawford (2003) these techniques are not faulty, but rather lack the inherent values of African people. Factors to consider could be: what motivates them, how they view or value work, how they relate to authority, or what values or virtues they hold most dear.

Ndiritu and Lynn (2003) state that the following social considerations be taken into account when dealing with projects in Africa:

- In Africa, extended family ties plays a crucial role in society, allegiances are to families, clans and ethnic groups.
- Ndiritu and Lynn (2003) quoting Mazrui (1980) “In Africa, society has a moralist orientation. Individuals are judged and ‘feel’ successful not only by having wealth, but by fulfilling their moral obligations to family, clan and ultimately ethnic group”.
- Predominantly rural life, but with the twin problem of urban centres characterised by rapid overcrowding at two to three times the overall growth rates.

Source: adapted from (Ndiritu and Lynn, 2003)

2.7.5.4 Technological environment

Morris (2006) states, that many studies have shown that technical problems are often the cause of projects running over allocated deadlines. Technical problems are related to the organisation, and the technological environment in which we live. Kerzner (2001) states that different project management styles need to be adopted based on the environment we operate in. Kerzner (2001) is of the opinion that different “driver” factors influence the global uniqueness of the project.

2.7.5.5 Client’s knowledge/expectations

People are increasingly becoming more aware of their effects on the environment. According to a recent white paper by KPMG International (2010), the global automotive industry is transforming. This transformation is
due to increasing consumer preferences towards using vehicles with reduced emissions (KPMG International, 2010). Governments around the world have responded by imposing stringent environmental regulations (KPMG International, 2010). Regulations differ world-wide and this presents an increasing complexity for OEM’s who export globally. This complexity is not only carried down to the production line, but also to product development divisions within the automotive industry which are involved in projects with regards to either localising or developing new products to meet customer demands. Customer preferences and government regulations affect projects, as well as the rate at which the “clean green wave” is accelerating placing enormous pressure on OEM’s to develop vehicles to meet these specifications. Figure 2.5 below shows the critical factors influencing green vehicle development globally and it can be seen that - customer power is a key success factor.

Figure 2.5: Drivers/Critical Success Factors for Green Vehicle Development Globally

Source: (KPMG in India, 2010)
2.7.5.6 Regulatory environment
Client preferences are being influenced by the trend towards environmentally-friendly vehicles, as well as governmental regulations imposed on automotive OEM's to develop “greener cars.” Figure 2.5 above lists government/regulatory support as one of the factors influencing the drive towards “greener” vehicles. To this effect, OEM’s have focused on reducing CO₂ emissions to reduce the carbon footprint of their vehicles (KPMG International, 2010).

South Africa has undergone various and remarkable transformational change since the general elections of April 1994. These changes, to some degree have had an influence on the project management methodologies employed in South Africa (Kerzner, 2001). Dr. Lionel J. Smalley (Kerzner, 2001) refers to changes in the following three areas:

• Legislated affirmative action in the workplace.
• Creation of the Southern African Development Community (SADC).
• Impact on the South African suppliers and contractors.

The aim of legislated Affirmative Action in the workplace came about as a measure to empower the previously disadvantaged community in both the public and private sectors (Kerzner, 2001). Affirmative Action and Parliamentary Bills related to it caused a major change in the way projects were managed (Kerzner, 2001).

The creation of SADC allowed companies to move their businesses to other countries where they enjoyed advantages over the local markets in South Africa, e.g. cheaper labour rates (Kerzner, 2001). This meant that project managers had the opportunity to scrutinise global markets where they had the opportunity to become more competitive by utilising advantages in other countries. Dr. Lionel J. Smalley (Kerzner, 2001) states that in the past many South African projects were affected by suppliers and contractors who often failed to deliver on time, delivered to the incorrect address or sometimes
even delivered goods that had been damaged. According to Dr. Lionel J. Smalley (Kerzner, 2001), during the transformation period many new suppliers and contractors were established and many of these groups were relatively new to the business. Some organisations were encouraged to appoint only newly-formed empowerment suppliers and contractors who had little experience as stated earlier (Kerzner, 2001). This resulted in delays on projects since new suppliers or contractors postponed deliveries due to them learning how to operate new businesses.

2.7.5.7 Client size and type
Selecting the correct client is crucial for project success (XL Group, 2011), as it ensures project success and helps to minimise loss. According to XL Group (2011), clients who do not meet or exceed certain expectations or requirements should be avoided. The automotive industry is very competitive and, OEM’s are in constant search of the correct type of vehicle to satisfy the client’s requirements. As can be seen from Figure 2.6 below, the vehicle market is large and varied with OEM’s fighting for increased market share.

![Figure 2.6: New Vehicle Sales Statistics (South Africa) - August 2012](image)

Source: (NAAMSA, 2012)
Customer preferences continually change and OEM’s that are better at forecasting customer requirements and are efficient at implementing projects for new vehicle models that attract the customer, are more successful than those that are not as capable. Organisations that do not perform can easily be replaced by products produced by a competitor OEM.

2.7.5.8 Infrastructural environment
According to Kerzner (2001), infrastructure affects the way projects are managed in different sectors of the world. Some locations might lack the correct infrastructure to support the industry needing to be established in the region. Transport plays a major role in the automotive industry. Road, rail, sea freight and airfreight are all used as modes of transport for delivery of goods to plants, as well as for the shipment of vehicles to customers, both locally and internationally. A strong transport network, supporting daily activities is needed for successful deliveries in the automotive industry.

Kerzner (2001) states that when planning in an environment with poor infrastructure, project managers should ensure adequate time is allocated to prevent delays in projects due to the late delivery of goods or materials.

Government also influences the roll-out of projects, and an example of this is the green mobility drive. OEM’s have developed vehicles that can operate on electricity, but poorer countries cannot utilise this technology due to lack of funds from government which are needed to install charging stations throughout a country (KPMG in India, 2010).

2.7.5.9 Availability of suppliers/sub-contractors
According to Kerzner (2001), when working in different countries, project managers should take into account limited contractor availability. The limitation of resources such as labour could influence the quality and timeliness of the project. Kerzner (2001) is of the opinion that project managers must have a thorough understanding of all the contracting
procedures where the project is to be undertaken. Lack of resources could have repercussions on the quality of the product, the cost of the product and the reputation of the organisation as call-backs or returns of faulty products could taint the brand’s image.

Against the background of the preceding literature review, it is therefore hypothesised that:

\[ H_5 : \text{Factors related to the external environment has an influence on project success.} \]

2.7.6 Factors related to tools and techniques

Project management as defined by Richman (2011) consists of a number of variables including the skills, methodologies, tools and techniques used to plan and manage projects. Project management, when used correctly, ensures an effective platform for creating an environment that is conducive to not only proper planning, but also the scheduling, resource allocation and decision making that ensures project success (Richman, 2011). According to Richman (2011) the main objective of project management is to meet the required outcome within the constraints of the “iron triangle”. To ensure that a project meets the desired outcome, a set of tools and techniques are stipulated below. As mentioned before in an earlier chapter, the tools employed below have been proven to have an influence on project success, they form part of the tangible side of project management. According to Kerzner (2001), a project manager's success in leading the project is measured against the following primary objectives:

- Target costs.
- Key milestones.
- Profit, net income, return on investment, contribution margin.
- Quality.
- Technical accomplishments.
- Market measures, new business, follow-on contract.
2.7.6.1 Proper planning/scheduling

Project planning is quite intricate as it involves a host of tasks that need to be performed cross-functionally. The planning tasks could include, but are not limited to the following planning activities:

- Quality planning.
- Organisational planning.
- Project communication planning.
- Procurement planning.
- Risk planning.
- Resource planning.
- Scope planning, etc.

Kerzner (2001) and (Davidson, 2000) state that one of the major responsibilities of the project manager is project planning. Kerzner (2001) is also of the opinion that project managers must ensure that there are adequate resources at the specified time to fulfill all the needs of the project. According to Richman (2011), average organisations only spend a fraction of their effort on project planning, and only the successful ones devote much more time and effort to project planning. There are always unexpected changes that influence projects, but project planning is essential as projects that do not have plans become even more chaotic when changes are required (Richman, 2011). Richman (2011) also states that organisations acknowledge the importance of a structured approach to planning and managing projects and he further concludes that project planning is a necessary core competency for project success.

2.7.6.2 Monitoring/control

According to Richman (2011), monitoring of tasks is essential, especially tasks that are on the critical path, since these tasks have the least flexibility and the greatest risk of not being completed on time. Kerzner (2001) states that the project need monitoring, as well as the team members involved in
the project as team functioning and performance often need corrective action
taken to prevent dysfunctional team behaviour. Tinnirello (2001) is of the
opinion that failing to monitor the environment and only reacting to threats
might place a project at risk. According to Richman (2011), thorough
monitoring combined with quick response to threats also ensures that quality
concerns are kept to a minimum.

2.7.6.3 Cost estimation/ budgeting
Richman (2011) defines budgeting as the process used to allocate estimated
costs to certain “work items” to establish a baseline that can be used as a
tool for measuring project performance. The budget forms one of the
constraints of the “iron triangle”, and being within the budget is one of the
factors that determine whether projects are successful or not, according to
literature previously discussed.

Often, the project budget is enforced upon the project manager, and
according to Davidson (2002), the budgetary limit helps to safeguard against
overzealous spending by team members working on the project. Davidson
(2002) states that this helps to promote efficiency within the team. According
to Richman (2011), more experienced project managers understand how
important it is to complete estimations as accurately as possible. To do this,
Richman (2011) suggests that the person providing the estimates should be
an expert in his or her field and be closely involved in the workings of the
project. Davidson (2000) states the tighter the budget and time constraints,
the greater the likelihood that problems will occur. Project managers should
budget for unexpected crises, as these could result running over-budget due
to the purchase of some resource that is vital to project completion
(Davidson, 2000).

2.7.6.4 Adherence to procedures
According to Richman (2011), those organisations that have procedures and
policies that define everyone’s responsibility and authority, have been more
successful in the project environment than those who have not had any
formal or written procedures in place. Richman (2011) is of the opinion that for people to work effectively in a project management environment, there has to be formal, written policies and procedures in place. These explain the role and authority of project managers and how project management functions in the organization (Richman, 2011).

2.7.6.5 Quality control
Kerzner (2001) is of the opinion that quality planning is one of the most essential factors towards project success. Over the past two decades the views on quality have changed, and Table 2.4 below shows the present and past views on quality (Kerzner, 2001).

In the automotive industry, quality is of the utmost importance, and in the current competitive industry many parts that were previously manufactured locally, have now been outsourced to overseas manufacturers. According to Kang (2010), quality issues have become a great concern as quality improvement is difficult to achieve and there is a risk of quality deterioration from overseas suppliers.

Davidson (2000) warns against losing sight of quality standards, as sometimes too much emphasis is placed on time and budget factors related to project management and quality can be overlooked. Kerzner (2001) states organisations that usually achieve excellence, are those committed to quality and focus on upfront planning to a large degree, quality is influenced by the availability of resources.
2.7.6.6 Risk analysis

Projects often fail due to risks that have either not been planned for, or the risks are known, but there were no contingency plans in place to prevent them from occurring (Harvard Business School, 1997). When people are questioned on the reasons for project failure, they will often state that there was a possibility of the risk, but no one took action to prevent the risk or proactively managed the risks associated with the project (Harvard Business School, 1997).

Against this background, the following hypothesis is formulated:

\textbf{H}_6: \textit{Factors related to tools and techniques have an influence on project success.}

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
Past & Present \\
\hline
Quality is the responsibility of blue-collar workers and direct labor employees working on the floor & Quality is everyone’s responsibility, including white-collar workers, the indirect labor force, and the overhead staff \\
\hline
Quality defects should be hidden from the customers (and possibly management) & Defects should be highlighted and brought to the surface for corrective action \\
\hline
Quality problems lead to blame, faulty justification, and excuses & Quality problems lead to cooperative solutions \\
\hline
Corrections to quality problems should be accomplished with minimum documentation & Documentation is essential for “lessons learned” so that mistakes are not repeated \\
\hline
Increased quality will increase project costs & Improved quality saves money and increases business \\
\hline
Quality is internally focused & Quality is customer focused \\
\hline
Quality will not occur without close supervision of people & People want to produce quality products \\
\hline
Quality occurs during project execution & Quality occurs at project initiation and must be planned for within the project \\
\hline
\end{tabular}
\caption{Changing views of quality}
\label{tab:changing_views_quality}
\end{table}
2.7.7 Factors related to suppliers

In today’s competitive world, suppliers of components or materials to OEM’s have played a significant role in helping to create a competitive advantage over rivals. Due to the rapidly changing nature of the current industry, OEM’s have become more reliant on suppliers’ support with new product developments (NPD) (Wagner and Hoegl, 2006). Wagner and Hoegl (2006) state that although there is sufficient evidence supporting the involvement of suppliers in NPD as being important, there is also evidence showing that these relationships often end up in failure. The author discusses the influence of suppliers on project success at OEM’s in the paragraphs below.

2.7.7.1 Supplier delivery capability and reliability

Gonzalez-Benito and Dale (2001) is of the opinion that organisations wishing to establish long, co-operative relationships with suppliers, no longer consider pricing as the only criterion. In fact, pricing is being replaced by quality and reliability of suppliers (Gonzalez-Benito and Dale, 2001).

Pycraft et al. (2010) states that when selecting suppliers, the factors listed in Table 2.5 below should be considered. The factors having the greatest influence on the way the business is run, should be given preference over factors having less influence (Pycraft et al., 2010).

In the automotive industry, keeping the production line running is one of the most important considerations to be taken into account when selecting a supplier. Suppliers installing production lines are selected based on the pricing stipulated for the line, as well as the supplier’s reputation as a reliable source. According to McCarthy (2011), the task of selecting a capable supplier sounds simple, but careful consideration should be given to the chosen supplier as mistakes could be costly for both supplier and customer. McCarthy (2011) further notes that working knowledge, as well as industry experience plays a crucial role in a successful project.
<table>
<thead>
<tr>
<th>Short Term Ability to supply</th>
<th>Longer-term ability to supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of products or services provided</td>
<td>Potential for innovation</td>
</tr>
<tr>
<td>Quality of products or services</td>
<td>Ease of doing business</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Willingness to share risk</td>
</tr>
<tr>
<td>Dependability of supply</td>
<td>Long term commitment to supply</td>
</tr>
<tr>
<td>Delivery and volume flexibility</td>
<td>Ability to transfer knowledge</td>
</tr>
<tr>
<td>Total cost of being supplied</td>
<td>Technical capability</td>
</tr>
<tr>
<td>Ability to supply in the required quantity</td>
<td>Operations capability</td>
</tr>
<tr>
<td></td>
<td>Financial capability</td>
</tr>
<tr>
<td></td>
<td>Managerial capability</td>
</tr>
<tr>
<td>Ability to develop local supply capacity</td>
<td>Demonstration of BEE</td>
</tr>
<tr>
<td></td>
<td>Broadening of participation in economy</td>
</tr>
</tbody>
</table>

Table 2.5: Factors for rating alternative suppliers

Source: (Pycraft et al., 2010)

2.7.7.2 Supplier technical capability influences project success

McCarthy (2011) is of the opinion that suppliers should be competent with the technology being utilised or deployed. According to Gules and Burgess (1996) buyers’ needs for suppliers are changing due to increased pressure from globalisation and attributes that were once valued have now been replaced by:

- quality,
- quick delivery,
- reliability and
- technical assistance.

According to Gules and Burgess (1996) buyers need suppliers who can do quick change-overs to new product programmes, or suppliers with the know-
how to enable them to master new technologies which will enable them to design robust components.

2.7.7.3 Supplier commitment and culture
Steyn (2009) quoting Gordon (1998) states that different organisational cultures can be detrimental to both customer and supplier if the inherent cultures of both organisations are not understood from the outset. Organisations appointing new suppliers should take the necessary steps to ensure that the relationship between the two organisations is one that will endure and contribute towards a mutually beneficial relationship (Steyn, 2009).

According to Perkins (2003), one of the most overlooked items in the project foundation is the impact that suppliers have on the project’s outcome. Perkins (2003) notes that projects often fail due to poor management of suppliers, a lack of coordination between the supplier and customer, and in the worst cases, suppliers are completely ignored.

2.7.7.4 Supplier’s support services and problem solving capabilities
McCarthy (2011) states that an in-depth study of the supplier’s resources is needed to ensure that the supplier has enough capacity to execute the project and secondly, to ensure adequate support after the project has been installed successfully. Very often, suppliers are not able to spare resources to support customers after installation, resulting in unsatisfied customers.

During installation, problems might be encountered; suppliers who have experience in dealing with similar projects have the methodologies for solving these problems as they have learnt from previous projects. Koskinen (2000) states that tacit knowledge or learned knowledge of project personnel has a significant impact on the success of a project.
2.7.7.5 Supplier’s access to resources

Localisation initiatives by local OEM’s often fail due to local suppliers not having support from overseas partners. Overseas suppliers are often appointed as development suppliers to First World OEM’s due to their large resource base. Overseas suppliers often have large cash reserves, technical know-how and capability and support from government. Local suppliers do not have access to the same resources as overseas suppliers and often lack the technical capabilities to produce parts acceptable for use in local vehicles.

There is a growing trend for OEM’s to use the same suppliers in different locations, a term referred to as “follow sourcing” (Humphrey and Memedovic, 2003). This means that local suppliers do not stand a chance of competing with these suppliers as they often patent critical areas of the components and have the technical know-how and support of the parent company should any problems arise in the “development” of the component.

McCarthy (2011) also states that it is important to establish whether the supplier has completed similar projects in order to determine their capability to complete the project successfully. Ensuring that the correct partner is chosen is a crucial step towards project success (McCarthy, 2011).

It is therefore hypothesised that:

\[ H_7 = \text{Factors related to the suppliers has an influence on project success}. \]

Based on the literature reviewed, it is clear that the factors identified in the study do have an influence on project success at organisations. The findings have thus changed the hypotheses to the research model depicted in Figure 2.7 below.
Figure 2.7: Research model, variables influencing Project Success

**Source:** The factors selected for the study have been adapted from similar previous studies of Belassi and Tukel (1996), Hyvärä (2006) and (Mishra et al., 2011)

The research model depicted in Figure 2.7 above will be used to identify the significance of the most critical success factors in the automotive industry.

2.8 CONCLUSION

In this chapter, the literature reviewed included the definition of a project, a project’s characteristics and the importance of project management. A brief outline of previous research showcased success factors as defined by previous authors. The present study asserts that certain factors do have an influence on project success, such as:

- The type of project undertaken.
- The characteristics of the project manager employed to oversee the tasks.
- The team members selected.
• The organisation in which the project is undertaken.
• The influence of external factors on project success.
• Project management methodologies.
• Suppliers’ influence.

The chapter also focused on the formulation of the hypotheses. On the basis of the variables identified, the theoretical model to identify factors influencing project success was formulated.

In the following chapter, a brief outline of the research methodology used for the investigation will be provided. The chapter will discuss the research paradigm used and provide significant detail with regards to the sampling design and the measuring instruments used. Chapter 3 will also discuss the results of the reliability and validity assessments of the instruments that were used in the chosen study.
CHAPTER 3

METHODOLOGY OF THE STUDY

3.1 INTRODUCTION

In the previous chapter the literature relating to the factors affecting project success was reviewed. In this chapter the research methodology used to test the hypotheses is discussed. The author will focus on discussions related to research paradigms and their differences, the population affected, the sample and the approach used for establishing the measuring instrument used in the study. The empirical results related to the measuring instruments will also be discussed.

3.2 THE RESEARCH PROCESS

According to Kumar (2011) research follows a certain set of processes which can be roughly surmised as follows: collecting, analysing and interpretation of the data gathered. Kumar (2011) is of the opinion that for research to be valid, the process needs to have certain characteristics. The process needs to be:

- Controlled – In exploring causality in relation to two variables, the author should try to ensure that any outside effects on the relationship between the two measured variables are minimised.
- Rigorous – The author must be meticulous in ensuring that the procedures stipulated are followed. This will ensure answers to questions that are relevant, appropriate and justified.
- Systematic – The procedures adopted to undertake the investigation should follow a certain logical sequence.
- Valid and verifiable – Whatever the researcher concludes on the basis of his/her findings is correct and can be verified not only by himself/herself, but also by outsiders.
• Empirical – Any conclusions drawn are based upon hard evidence/facts gathered from the information collected from either real-life experiences or observations.

• Critical – There should be critical scrutiny of the procedures and methods for a valid research enquiry.

Source: (Kumar, 2011)

The different types of research are depicted in Figure 3.1 below:

![Types of research diagram](image)

**Figure 4:** Different types of research  
**Source:** (Kumar, 2011)

### 3.3 THE RESEARCH PARADIGM

According to Collis and Hussey (2009, p.55), “a research paradigm is a philosophical framework that guides how research should be conducted, based on people’s philosophies and their assumptions”. According to Kumar (2011) there are two main paradigms, which are defined as positivism and interpretivism and these two paradigms form the basis for research conducted in the social sciences (Kumar, 2011). Interpretivism is highly subjective as it is based on our perceptions (Collis and Hussey, 2009), whereas positivism is underpinned by belief that reality is independent of us
and the goal is the discovery of theories, based on empirical research (Collis and Hussey, 2009). Kumar (2011) is of the opinion that the positivist paradigm is rooted in the physical sciences and it is also referred to as the systematic, quantitative or scientific approach. The interpretivist approach is also known as an ethnographic, ecological qualitative or naturalistic approach (Kumar, 2011). Kumar (2011) is of the opinion that both paradigms have developed their own value, terminology, techniques and methods for understanding the social phenomena, however, since the mid 1960’s it has broadly been accepted that both paradigms have proven themselves to be valuable.

Kumar (2011) states that no matter which paradigm is chosen, the researcher should adhere to the prescribed values of the system which limit bias and help to maintain objectivity.

3.3.1 Quantitative paradigm
The process of quantitative research consists of carefully structured guidelines for conducting the research. Concepts, variables and hypotheses tend to be defined prior to the commencement of the study (Leedy, 1997). The researcher has to remain detached from the research in order to not make biased generalizations (Leedy, 1997).

3.3.2 Qualitative paradigm
A phenomenological paradigm is concerned with understanding human behaviour from the participant’s own frame of reference. It focuses on the meaning, rather than the measurement of social phenomena (Collis and Hussey, 2003).
Table 3.1: Summary of differences between qualitative and quantitative research

Source: (Hancock, Windridge, Ockleford, 2007, p.6)

3.4 SELECTED PARADIGM

The chosen paradigm is quantitative and was selected because the researcher felt that there was a need to test whether the project management success factors at local OEM’s were effective when compared with global best practice standards. The researcher needed to determine if project management effectiveness can be improved at local OEM’s by making recommendations based on the findings of the study.
3.5 THE SAMPLE

In this study there are three types of sampling that will be used, namely:

- convenience,
- stratified and
- snowball sampling.

Convenience sampling was selected due to the nature of the study and respondents selected were in close proximity of the researcher.

The sample was stratified to include managers, supervisors/specialists, project co-ordinators, general employees, etc. All these respondents are affected by project management at local OEM’s. A stratified sample was selected due to the nature and role of the respondents in their daily tasks. The researcher wished to obtain perspectives from all role players involved in projects at OEM’s.

The selected respondents were requested to complete the questionnaire only if they were involved in projects at the OEM. According to Collis and Hussey (2009), snowball sampling sometimes also called networking, is associated with interprevist studies where it is important to have respondents who have experience in the study being undertaken.

3.6 THE QUESTIONNAIRE

The factors selected for the questionnaire have been adapted from previous studies conducted by Belassi and Tukel (1996), Hyvärri (2006) and Mishra et al. (2011). The literature review conducted in Chapter 2 also contributed to the formulation of the questionnaire and provided one other factor to be tested, namely, suppliers’ and contractors’ influences on project success at organisations.
The questionnaire used in this research consisted of close-ended questions formulated from the content analyses of the literature reviewed in Chapter 2. All the questionnaire items were anchored to a 5-point Likert Scale, ranging from 1 to 5, where one stipulated strongly disagree and 5 represented strongly agree with the question or statement made. *Statistica* Version 10.0 (2010), a computer software program, was used to conduct the statistical analyses of the data collected in the study.

### 3.7 THE PILOT STUDY

A pilot study was conducted before the final questionnaire was distributed - five (5) questionnaires were sent to respondents deemed competent in the field of project management. One of the major concerns noted was the time taken to complete the questionnaire, approximately twenty (20) minutes. One respondent suggested the use of “survey monkey”, an online survey system that allows for ease of use, and also reduces the response time by approximately three to four minutes. All concerns and mistakes noted in the pilot study were rectified before the questionnaire was sent to the final respondents of the survey.

### 3.8 THE RESPONSE RATE AND DEMOGRAPHIC COMPOSITION

The researcher sent a web link via email to one hundred and twenty (120) respondents, however only 52 respondents completed the online survey (43%). Fifty seven percent (57%) of respondents did not complete the survey and the response rate is depicted in Figure 3.2 below.
Figure 5: Survey response rate
Source: Researcher’s own design

Figure 3.3 below shows the gender split of the respondents. Twelve (12) of the fifty two (52) respondents from the sample were female; that is a twenty three (23) percent female response rate. The survey indicated seventy seven (77) per cent of respondents were male.

Figure 6: Split of respondents according to gender
Source: Researcher’s own design

The following biographical information was recorded: gender, age group, position within the organisation, years of tenure and lastly, respondents were asked to confirm which department they were employed in. Table 3.2 below depicts the demographic composition of the respondents.
<table>
<thead>
<tr>
<th>What is your gender?</th>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>23%</td>
<td>12</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>77%</td>
<td>40</td>
</tr>
</tbody>
</table>

Answered question 52

<table>
<thead>
<tr>
<th>Which category below includes your age?</th>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td></td>
<td>29%</td>
<td>15</td>
</tr>
<tr>
<td>30-39</td>
<td></td>
<td>48%</td>
<td>25</td>
</tr>
<tr>
<td>40-49</td>
<td></td>
<td>15%</td>
<td>8</td>
</tr>
<tr>
<td>50-59</td>
<td></td>
<td>8%</td>
<td>4</td>
</tr>
</tbody>
</table>

Answered question 52

<table>
<thead>
<tr>
<th>What staff level are you?</th>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Staff</td>
<td>71%</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Supervisor/Specialist</td>
<td>25%</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Manager</td>
<td>4%</td>
<td>2</td>
</tr>
</tbody>
</table>

Answered question 52

Table 3.2: Demographic information of respondents

Source: Researcher’s own design

Figure 3.4 below illustrates that 29 percent of the respondents are aged between 20 – 29, 48 percent are between the ages of 30 – 39, 15 percent are between the ages of 40 – 49 and 8 percent are aged between 50 - 59 years.
Figure 7: Age group of the respondents  
Source: Researcher’s own design

Table 3.2 below gives a breakdown of the position held within the organisation. Employees on staff level constitute 71 percent of the respondents, followed by 25 percent of respondents on a supervisory or management level and 4 percent of respondents were on management level.

At least 63 percent of the respondents have been working longer than four years at the organisation. This is good as members with longer working experience at the organisation will have better insight into the daily workings of the organisation. Long tenure also gives a good take on the individuals experience working on not only different projects, but with different project managers within the organisation. Nineteen (19) percent of respondents have been employed at the organisation for less than one year. Approximately seventeen (17) percent of respondents have been employed at the organisation between 1 – 4 years, thirty one (31) percent have been employed between 5 – 9 years, fifteen (15) percent have been employed at the organisation for 10 – 14 years and seventeen (17) percent have been employed for longer than 20 years.
Approximately forty two (42) percent of respondents were employed in the product engineering division, fifteen (15) percent in the logistics division, thirteen (13) percent in the purchasing division, and twelve (12) percent in the production environment. Sales, product management and human resources have a combined response rate of approximately ten (10) percent.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>29%</td>
<td>15</td>
</tr>
<tr>
<td>30-39</td>
<td>48%</td>
<td>25</td>
</tr>
<tr>
<td>40-49</td>
<td>15%</td>
<td>8</td>
</tr>
<tr>
<td>50-59</td>
<td>8%</td>
<td>4</td>
</tr>
</tbody>
</table>

**answered question** 52

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>71%</td>
<td>37</td>
</tr>
<tr>
<td>Supervisor/Specialist</td>
<td>25%</td>
<td>21</td>
</tr>
<tr>
<td>Manager</td>
<td>4%</td>
<td>2</td>
</tr>
</tbody>
</table>

**answered question** 52

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>19%</td>
<td>10</td>
</tr>
<tr>
<td>1 - 4</td>
<td>17%</td>
<td>9</td>
</tr>
<tr>
<td>5 - 9</td>
<td>31%</td>
<td>16</td>
</tr>
<tr>
<td>10 - 14</td>
<td>15%</td>
<td>8</td>
</tr>
<tr>
<td>20+</td>
<td>17%</td>
<td>9</td>
</tr>
</tbody>
</table>

**answered question** 52

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/Service Technical</td>
<td>4%</td>
<td>2</td>
</tr>
<tr>
<td>Purchasing</td>
<td>13%</td>
<td>7</td>
</tr>
<tr>
<td>Quality</td>
<td>8%</td>
<td>4</td>
</tr>
<tr>
<td>Production</td>
<td>12%</td>
<td>6</td>
</tr>
<tr>
<td>Logistics</td>
<td>15%</td>
<td>8</td>
</tr>
<tr>
<td>Product Engineering</td>
<td>42%</td>
<td>22</td>
</tr>
<tr>
<td>Human Resources</td>
<td>2%</td>
<td>1</td>
</tr>
<tr>
<td>Product Management</td>
<td>4%</td>
<td>2</td>
</tr>
</tbody>
</table>

**answered question** 52

**Table 3.3:** Staff level, department and years of tenure
Respondents in the survey were asked if they had received any formal project management training. Surprisingly, only sixty nine (69) percent of respondents had received formal project management training as depicted in Table 3.4 below.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>69%</td>
<td>36</td>
</tr>
<tr>
<td>No</td>
<td>31%</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 3.4: Project management training received by respondents

Source: Researcher’s own design

The majority of respondents received in-house training from the OEM, in-house training provided by the OEM accounted for thirty nine (39) percent of the training, twenty (20) percent of respondents attended a project management seminar, mentoring accounted for fifteen (15) percent and online training done by respondents accounted for ten (10) percent of the training received. As can be seen by the results in Table 3.4, other training specified accounted for sixteen (16) percent, other training was comprised of the following:

- Module towards Btech degree.
- BSc. Mechanical Engineering course.
- MBA project management.
- External project management course provided by NMMU.

The results have been graphically depicted in Figure 3.5 below.
If you answered yes to the above question, please indicate which project management training you received

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended project management seminar</td>
<td>20%</td>
<td>12</td>
</tr>
<tr>
<td>In-house training with organisation</td>
<td>39%</td>
<td>24</td>
</tr>
<tr>
<td>Mentoring or coaching</td>
<td>15%</td>
<td>9</td>
</tr>
<tr>
<td>Online training</td>
<td>10%</td>
<td>6</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>16%</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3.5: Project management training received by respondents

Source: Researcher’s own design

Figure 3.5: Project management training received by respondents

Source: Researcher’s own design

3.9 RELIABILITY OF THE MEASURING INSTRUMENTS

Sekaran and Bougie (2009) define reliability of the measuring instrument as an indication of the stability and consistency with which the instrument measures the concept and helps to assess the “goodness” of the measure. Sekaran and Bougie (2009) state that the reliability of a measure indicates the extent to which it is without bias, and therefore ensures a consistent measurement.
Stability of measures refers to the ability of the measure to remain the same over time. According to Sekaran and Bougie (2009), this is a reflection of the “goodness” of the measurement and two methods used for testing stability are the test-retest reliability and the parallel form reliability. Test–retest reliability shows the consistency of the measuring instrument to yield the same or similar results over a period of time. The closer the test–retest results, the more reliable or stable the measuring instrument (Sekaran and Bougie, 2009).

Parallel-form reliability measures responses from two comparable sets of measures and uses the correlation between the comparable constructs as a measure of its reliability. The only difference between the constructs is the wording and the layout of the questions. When similar responses are recorded from the similar forms, it can be assumed that the measures are reasonably reliable (Sekaran and Bougie, 2009).

Internal consistency as defined by Sekaran and Bougie (2009) is a reflection of the homogeneity of the items in the measure that tap the construct. This is simply defined as a set of items that should belong together. There are two methods used for measuring consistency, namely interitem consistency and the split-half reliability test (Sekaran and Bougie, 2009). According to Sekaran and Bougie (2009) split-half reliability reflects the correlation between two halves of a measuring instrument. They are also of the opinion that the estimates will vary due to the nature of the splitting of the items in the measure. Sekaran and Bougie (2009) state that Cronbach Alpha can be considered as a satisfactory index of the interitem consistency reliability. That said, the factors related to project success in the study yielded the results displayed in Table 3.6 below. The Cronbach Alpha coefficient ranges between zero (0) and one (1), the closer the coefficient is to one, the greater the internal consistency of the items in the scale. Sekaran and Bougie (2009) state that reliabilities lower than 0.60 are considered poor, those values between 0.70 – 0.80 are deemed acceptable, and anything
above 0.80 is good. As can be seen from the values below, only one factor, namely, factors related to the project, yielded a result of $\alpha = 0.52$, which means that the measuring instrument was poor and not very reliable. All measuring instruments, except for the factors related to the project, will be analysed in Chapter 4.

<table>
<thead>
<tr>
<th>Measuring Instrument</th>
<th>Alpha Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors related to the project</td>
<td>$\alpha = 0.52$</td>
</tr>
<tr>
<td>Factors related to the project manager</td>
<td>$\alpha = 0.83$</td>
</tr>
<tr>
<td>Factors related to the project team</td>
<td>$\alpha = 0.71$</td>
</tr>
<tr>
<td>Factors related to the organisation</td>
<td>$\alpha = 0.73$</td>
</tr>
<tr>
<td>Factors related to the external environment</td>
<td>$\alpha = 0.71$</td>
</tr>
<tr>
<td>Factors related to tools and techniques</td>
<td>$\alpha = 0.81$</td>
</tr>
<tr>
<td>Factors related to suppliers and contractors</td>
<td>$\alpha = 0.83$</td>
</tr>
</tbody>
</table>

Table 3.6: Cronbach Alpha values for the measuring instruments

Source: Researcher’s own design

3.10 THE MEASURING INSTRUMENTS AND DATA ANALYSIS

The literature review in Chapter 2 covered extensive factors related to project success. The instruments used to measure project success as defined by the hypotheses model were constructed based on the literature reviewed. The final questionnaire consisted of 41 items and the breakdown of the items are listed below:

- 5 items measured factors related to the project and its influence on project success,
- 7 items measured the project manager and his/her influence on project success,
- 6 items measured the project team and their influence on project success,
- 6 items measured the influence of the organisation on project success,
• 6 items measured the influence of the external environment on project success,
• 6 items measured the influence of the tools and techniques on project success,
• 5 items measured the influence of suppliers and contractors on project success.

Data was captured using an online survey tool called “survey monkey”. Descriptive statistics was used to compile the demographic composition of the respondents and this was provided by the online service. The factors and statements related to project success was analysed using Statistica Version 10.0 (2010), and the results are discussed in Chapter 4.

3.11 VALIDITY OF THE MEASURING INSTRUMENTS

Craig (2009) states that validity is simply a measure to determine if the question or test measure, measures what is intended to be measured. Craig (2009) is of the opinion that validity also refers to the reliability of the research design. The different types of validity are summarised in Table 3.7 below.
### Table 3.7: Different types of validity

<table>
<thead>
<tr>
<th>Types of validity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Ascertain if the measure adequately measures the concept</td>
</tr>
<tr>
<td>Face</td>
<td>Establishes if “experts” are able to validate that the instrument measures what its name suggests it measures.</td>
</tr>
<tr>
<td>Criterion-related</td>
<td>Ascertain if the measure differentiates in a manner that helps to predict a criterion value</td>
</tr>
<tr>
<td>Concurrent</td>
<td>Determine if the measure differentiates in a manner that helps to predict a criterion variable currently</td>
</tr>
<tr>
<td>Predictive</td>
<td>Determine whether the measure differentiates individuals in a manner that helps predict a future criterion.</td>
</tr>
<tr>
<td>Construct</td>
<td>Establishes if the instrument used “taps” the concept as theorized.</td>
</tr>
<tr>
<td>Convergent</td>
<td>Do the two instruments measuring the concept have a high correlation</td>
</tr>
<tr>
<td>Discriminant</td>
<td>Determine if the measure has a low correlation with a variable that is supposed to be unrelated to the variable.</td>
</tr>
</tbody>
</table>

**Source:** Adapted from *(Sekaran and Bougie, 2009, p.160)*

The extensive literature reviewed in Chapter 2 provided a sound basis for establishing an instrument that is validated under content validity.

### 3.12 CONCLUSION

In Chapter 3 the research methodology used in the study was explained. The research process, research paradigm, the sample and measuring instruments were discussed. The chapter also reported on the reliability and validity of the measuring instruments used in the study. In the next chapter the empirical results of the study will be reported upon.
CHAPTER 4

EMPIRICAL RESULTS

4.1 INTRODUCTION

This chapter deals with the findings and the results of the research study conducted. These results are derived from the completed questionnaires obtained and this data will be analysed by means of descriptive statistics. The descriptive statistics aim to reflect the opinions of the respondents on the nature and importance of project success factors at their organisation. Tables and graphs will be used to present the data.

4.2 EMPIRICAL RESULTS: DESCRIPTIVE STATISTICS

The analysis and interpretation of the results from the questionnaire will be presented in this section. The empirical results that will be discussed are summarised in Tables 4.1 – 4.7 and Figures 4.1 – 4.7. The results are presented in the form of means (rating averages), percentages and standard deviation. A column depicting “Alpha if deleted” has also been added to see where improvements in the measuring instrument by the omission of certain questions, could have improved the reliability of the measuring instrument. Inter-item totals have also been provided to show the relationship of the statement in relation to other items in the group. Inter-item scores higher that 0.3 are deemed acceptable.

Table 4.1 and Figure 4.1 represent the data from returned questionnaires which indicate the respondents’ perception of what is deemed important factors related to the project manager and his/her influence on a project’s success.
Table 4.4: Factors related to the project

**Source:** Researcher’s own design

Overall rating average score = 4.32; average standard deviation score = 0.672. Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.1 above, forty six (46) percent of the respondents agreed and a further forty six (46) percent strongly agreed that project managers require good co-ordination skills for a project to be successful. Only six (6) percent were neutral on this statement and two (two) percent strongly disagreed with the statement. Forty eight (48) percent and forty two (42) percent of respondents, respectively agreed and strongly agreed to the project manager’s commitment having a significant influence on a project’s success, while only eight (8) percent were neutral and two (2) percent of the respondents disagreed with the statement. The next statement, leading effectively, scored the highest position in the group with a rating average score of 4.50, indicating that respondents felt that leading effectively was the most important item in the group when it came to the project manager’s characteristics. Competency of the project manager as well as his/her ability to manage resources efficiently had equal importance and were selected as

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Agree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
<th>Rating Ave</th>
<th>Int-Item Corr.</th>
<th>Alpha if deleted</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM1 For a project to be successful, project managers need good co-ordination</td>
<td>2%</td>
<td>0%</td>
<td>6%</td>
<td>46%</td>
<td>4.35</td>
<td>0.583</td>
<td>0.811</td>
<td>0.764</td>
</tr>
<tr>
<td>skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM2 A project manager with a strong commitment to succeed is needed to</td>
<td>0%</td>
<td>2%</td>
<td>8%</td>
<td>48%</td>
<td>4.31</td>
<td>0.763</td>
<td>0.779</td>
<td>0.701</td>
</tr>
<tr>
<td>ensure that the project will be successful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM3 Project managers should lead effectively if a project is to be successful.</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
<td>37%</td>
<td>4.50</td>
<td>0.607</td>
<td>0.806</td>
<td>0.672</td>
</tr>
<tr>
<td>PM4 A project manager should be competent in his or her role as a project</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>40%</td>
<td>4.48</td>
<td>0.618</td>
<td>0.805</td>
<td>0.610</td>
</tr>
<tr>
<td>manager if the project is to be successful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM5 Project managers who are able to manage resources efficiently have a</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>40%</td>
<td>4.48</td>
<td>0.462</td>
<td>0.827</td>
<td>0.610</td>
</tr>
<tr>
<td>better chance of project success.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM6 Project managers need a high degree of emotional intelligence to ensure</td>
<td>0%</td>
<td>2%</td>
<td>27%</td>
<td>48%</td>
<td>3.92</td>
<td>0.471</td>
<td>0.830</td>
<td>0.763</td>
</tr>
<tr>
<td>project success.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM7 Situational leadership is an important skill a project manager needs to</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
<td>62%</td>
<td>4.23</td>
<td>0.599</td>
<td>0.808</td>
<td>0.581</td>
</tr>
<tr>
<td>ensure projects are implemented successfully.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Average Int-Item corr.: 0.44_  |  |  |  |  |  |  |  |  |
_Cronbach alpha: 0.83_  |  |  |  |  |  |  |  |  |

For a project to be successful, project managers need good co-ordination skills.
the second and third most important items, both displaying a rating average score of 4.80. Emotional intelligence of the project manager scored the lowest overall result in the characteristics of a project manager and his/her influence on project success with a rating average score of 3.92. Twenty three (23) percent of respondents strongly agreed with the statement, forty eight (48) agreed, twenty seven (27) percent remained neutral and two (2) percent of the respondents disagreed with the statement. Situational leadership scored a rating average of 4.23, with thirty one (31) percent of respondents strongly agreeing, sixty two (62) percent agreeing and nine (9) percent of respondents remaining neutral.

The overall rating average score of 4.32 indicates that the majority of the respondents feel that the project manager has a significant influence on the success of a project.

Figure 4.1 below gives a graphical representation of the ratings average versus the statements made.

**Figure 4.1**: Factors related to the Project Manager  
**Source**: Researcher’s own design
Table 4.2: Factors related to the Project Team

Source: Researcher's own design

Average mean score = 4.43; average standard deviation score = 0.594. Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.2 above, fifty (50) percent of the respondents agreed and a further seventeen (17) percent strongly agreed that the project team requires a good technical background for a project to be successful. The inter-item score of 0.27 shows that this item does not represent a high correlation to other items in this group, it should also be noted that should this item be deleted, the Cronbach Alpha value will escalate to 0.76 as opposed to the current value of 0.705, which is a significant increase.

Twenty five (25) percent of respondents remained neutral on this statement, six (6) percent disagreed and two (two) percent strongly disagreed with the statement. Forty four (44) percent and forty eight (48) percent of respondents respectively, agreed and strongly agreed to the project team’s commitment having a significant influence on a project’s success, while only eight (8) percent of respondents remained neutral. The level of co-operation amongst team members had an average rating score of 4.44, with forty eight (48) percent of respondents agreeing and strongly agreeing to the statement, four
(4) percent of the respondents remained neutral. The ability of the project team to handle unexpected crisis scored the highest position in the group with an average rating score of 4.71, seventy one (71) percent of respondents strongly agreed to this statement and the remainder, twenty nine (29) percent, agreed that the ability to handle unexpected crisis was crucial for project success. Effective monitoring and feedback came in at third most important item in project team’s with an average rating score of 4.62. Sixty three (63) percent of respondents strongly agreed to this statement, thirty five (35) percent agreed and two percent of respondents remained neutral. The second most important item in the group, proper communication, came in with an average rating score of 4.63.

The overall rating average score of 4.43 is an indication that the majority of the respondents feel that the project manager has a significant influence on the success of a project.

Figure 4.2 below gives a graphical representation of the ratings average versus the statements made.

**Figure 4.2:** Factors related to the Project Team

**Source:** Researcher’s own design
<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Rating Average</th>
<th>Itm-ToIl Correl.</th>
<th>Alpha if deleted</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO1* Top management support is crucial for project success</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
<td>38%</td>
<td>54%</td>
<td>4.46</td>
<td>0.4829</td>
<td>0.695662</td>
<td>0.640513</td>
</tr>
<tr>
<td>PO2 The structure of an organisation is important for project success</td>
<td>0%</td>
<td>8%</td>
<td>31%</td>
<td>44%</td>
<td>17%</td>
<td>3.71</td>
<td>0.4484</td>
<td>0.704759</td>
<td>0.847986</td>
</tr>
<tr>
<td>PO3* Project managers who have the support of functional managers stand a better chance of implementing project successfully</td>
<td>0%</td>
<td>4%</td>
<td>6%</td>
<td>58%</td>
<td>33%</td>
<td>4.19</td>
<td>0.2665</td>
<td>0.749437</td>
<td>0.715061</td>
</tr>
<tr>
<td>PO4 Organisations that use monitoring committees to manage projects have a better chance of project success</td>
<td>0%</td>
<td>10%</td>
<td>38%</td>
<td>35%</td>
<td>17%</td>
<td>3.60</td>
<td>0.4608</td>
<td>0.702685</td>
<td>0.891344</td>
</tr>
<tr>
<td>PO5* Organisations that clearly define working definitions have a better chance of achieving project success</td>
<td>0%</td>
<td>0%</td>
<td>15%</td>
<td>52%</td>
<td>33%</td>
<td>4.17</td>
<td>0.5959</td>
<td>0.664442</td>
<td>0.677977</td>
</tr>
<tr>
<td>PO6 Organisational culture has a big influence on a project being implemented successfully</td>
<td>0%</td>
<td>2%</td>
<td>21%</td>
<td>50%</td>
<td>27%</td>
<td>4.02</td>
<td>0.6104</td>
<td>0.65481</td>
<td>0.753824</td>
</tr>
</tbody>
</table>

Average inter-item corr.: .328678
Cronbach alpha: 0.73

Table 4.3: Factors related to the organisation

Source: Researcher's own design

Average mean score = 4.03; average standard deviation score = 0.754 Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.3 above, fifty four (54) percent of the respondents strongly agreed and a further thirty eight (38) percent agreed that top management support is important for project success. Eight (8) percent of respondents remained neutral on this statement. Top management support was the highest ranked item in this group with an average rating score of 4.46. Forty four (44) percent and seventeen (17) percent of respondents respectively agreed and strongly agreed to the structure of the organisation having a significant influence on a project’s success, while only eight (8) percent of respondents disagreed and thirty one (31) percent of respondents remained neutral. Support from functional management had the second highest average rating score, 4.19, with fifty eight (58) percent of respondents agreeing and thirty three (33) percent of respondents strongly agreeing to the statement, six (6) percent of the respondents remained neutral and four (4) percent
disagreeing. Please note that the inter-item score of 0.27 shows that this item does not represent a high correlation to other items in this group.

Thirty five (35) percent of respondents agreed that organisations that use monitoring committees to manage projects have an influence on project success. Seventeen (17) percent strongly agreed, thirty eight (38) percent of respondents remained neutral and ten (10) percent of the respondents disagreed to this statement. The third most important item in the group, clearly defined working definitions, came in with an average rating score of 4.17.

The overall rating average score of 4.03 indicates that the organisation has an influence on the success of a project.

Figure 4.3 below gives a graphical representation of the ratings average versus the statements made.

**Figure 4.3**: Factors related to the organisation

**Source**: Researcher’s own design
Table 4.4: Factors related to the external environment

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Rating Average</th>
<th>Item-Tot Corr.</th>
<th>Alpha if deleted</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE1 The Economic environment influences project success.</td>
<td>4%</td>
<td>10%</td>
<td>13%</td>
<td>48%</td>
<td>25%</td>
<td>3.81</td>
<td>0.6201</td>
<td>0.611679</td>
<td>1.0486</td>
</tr>
<tr>
<td>PE2* The Technological environment influences project success.</td>
<td>0%</td>
<td>4%</td>
<td>19%</td>
<td>52%</td>
<td>25%</td>
<td>3.98</td>
<td>0.3920</td>
<td>0.690611</td>
<td>0.7794</td>
</tr>
<tr>
<td>PE3* The Client's knowledge/expectations influences project success.</td>
<td>4%</td>
<td>4%</td>
<td>6%</td>
<td>62%</td>
<td>25%</td>
<td>4.00</td>
<td>0.3742</td>
<td>0.696867</td>
<td>0.9075</td>
</tr>
<tr>
<td>PE4 Client size and type influences project success.</td>
<td>6%</td>
<td>27%</td>
<td>37%</td>
<td>27%</td>
<td>4%</td>
<td>2.96</td>
<td>0.4667</td>
<td>0.668614</td>
<td>0.9694</td>
</tr>
<tr>
<td>PE5 The countries infrastructural resources influence project success.</td>
<td>2%</td>
<td>4%</td>
<td>33%</td>
<td>38%</td>
<td>23%</td>
<td>3.77</td>
<td>0.4484</td>
<td>0.674202</td>
<td>0.9207</td>
</tr>
<tr>
<td>PE6* The availability of suppliers/sub-contractors influences project success.</td>
<td>0%</td>
<td>2%</td>
<td>10%</td>
<td>52%</td>
<td>37%</td>
<td>4.23</td>
<td>0.3827</td>
<td>0.693889</td>
<td>0.7034</td>
</tr>
</tbody>
</table>

Average item-item corr.: 0.296602
Cronbach alpha: 0.71

**Source:** Researcher’s own design

Average mean score = 3.79; average standard deviation score = 0.888.

Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.4 above, forty eight (48) percent of the respondents agreed that the economic environment has an influence on project success; a further twenty five (25) percent strongly supported this statement. Thirteen (13) percent remained neutral, ten (10) percent disagreed and four (4) percent of respondents strongly disagreed. Fifty two (52) percent of respondents agree that the technological environment also played a part in determining project success; twenty five (25) percent of respondents strongly supported this statement while nineteen (19) percent remained neutral and four (4) percent disagreed. The client’s knowledge/expectation had the second highest average rating score, 4.00, with sixty two (62) percent of respondents agreeing and twenty five (25) percent of respondents strongly agreeing to the statement, six (6) percent of the respondents remained neutral and four (4) percent disagreed, and four (4) percent strongly disagreed.
Client size and type had the lowest item score of all items reviewed; it scored an average rating score of 2.96, with only four (4) percent of respondents strongly agreeing to this statement and twenty seven (27) percent of respondents agreeing to it. Thirty seven (37) percent of respondents remained neutral while twenty seven (27) percent of respondents disagreed with this statement and a further six (6) percent strongly disagreeing to the statement.

The countries' infrastructural resources scored an average rating score of 3.77, with twenty three (23) percent of respondents strongly agreeing to this statement and thirty eight (38) percent of respondents agreeing to it. Thirty three (33) percent of respondents remained neutral four (4) percent of respondents disagreed with this statement and a further two (2) percent strongly disagreeing to the statement. The availability of suppliers scored the highest average rating score with a figure of 4.23, fifty two (52) percent of respondents agreed with the statement, and a further thirty seven (37) percent of respondents strongly agreed with the statement.

The overall rating average score of 3.79 indicates that the external environment has an influence on the success of a project. Figure 4.4 below gives a graphical representation of the ratings average versus the statements made.
**Figure 4.4:** Factors related to the external environment

**Source:** Researcher’s own design

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Rating Average</th>
<th>Item-Toil Corr.</th>
<th>Alpha if deleted</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT1* Proper planning/scheduling influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>31%</td>
<td>67%</td>
<td>4.65</td>
<td>0.5890</td>
<td>0.7807</td>
<td>0.5196</td>
</tr>
<tr>
<td>TT2 Utilising monitoring/ control techniques influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
<td>56%</td>
<td>37%</td>
<td>4.29</td>
<td>0.6788</td>
<td>0.7580</td>
<td>0.6051</td>
</tr>
<tr>
<td>TT3* Proper Cost estimation/budgeting influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>54%</td>
<td>40%</td>
<td>4.35</td>
<td>0.3901</td>
<td>0.8217</td>
<td>0.5963</td>
</tr>
<tr>
<td>TT4 Utilising quality control procedures influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>63%</td>
<td>33%</td>
<td>4.29</td>
<td>0.6573</td>
<td>0.7661</td>
<td>0.5364</td>
</tr>
<tr>
<td>TT5* Doing proper risk analysis before the project commences influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>37%</td>
<td>60%</td>
<td>4.56</td>
<td>0.4121</td>
<td>0.8163</td>
<td>0.5744</td>
</tr>
<tr>
<td>TT6 Utilising tools that optimise resource management influences project success.</td>
<td>0%</td>
<td>2%</td>
<td>8%</td>
<td>54%</td>
<td>37%</td>
<td>4.25</td>
<td>0.7435</td>
<td>0.7395</td>
<td>0.6824</td>
</tr>
</tbody>
</table>

| Cronbach alpha | 0.81 |

**Table 4.5:** Factors related to tools and techniques

**Source:** Researcher’s own design

Average mean score = 4.40; average standard deviation score = 0.584. Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.5 above, sixty seven (67) percent of the respondents strongly agreed and a further thirty one (31) percent agreed that proper planning is
important for project success, only two (2) percent of respondents remained neutral. Proper planning is considered the most important item in the group with an average rating score of 4.65. Fifty six (56) percent of respondents agreed that the utilization of monitoring techniques influenced project success; thirty seven (37) percent of respondents strongly supported this statement while eight (8) percent remained neutral. Ninety four (94) percent of respondents agreed to strongly agreed on the influence of proper cost estimation on project success, only six (6) percent of respondents remained neutral. Deleting this item would yield a slightly improved Cronbach Alpha value of 0.82, as opposed to the current value of 0.81. Quality control yielded a sixty three (63) percent agreement rating, with a further thirty three (33) percent of respondents strongly agreeing to the statement, four percent of respondents remained neutral. Sixty (60) percent of respondents strongly agreed and thirty seven (37) percent of respondents agreed to the statement that proper risk analysis influenced project success. Four (4) percent of respondents remained neutral. Thirty seven (37) percent of respondents strongly agree and fifty four (54) percent of respondents agree that utilizing tools that optimise resource management helps to improve project success; the item scored an average rating score of 4.25.

The overall rating average score of 4.40 indicates that tools and techniques have an influence on the success of a project.

Figure 4.5 below gives a graphical representation of the ratings average versus the statements made.
Respondents of the survey were asked whether or not they felt that the supplier’s role was crucial to project success or not. The results are shown in Table 4.6 below: ninety six (96) percent of respondents answered yes to suppliers playing an influential role in project success at their organisation, only four (4) percent of respondents disagreed.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>96.0%</td>
<td>50</td>
</tr>
<tr>
<td>No</td>
<td>4.0%</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.6: Suppliers role in influencing project success

Source: Researcher’s own design
Do you think that suppliers play a crucial role in project success at your organisation?

![Pie chart showing responses]

Figure 4.6: A graphical representation of responses related to a supplier’s influence on project success.

Based on the response from the respondents, a new factor was added to the previous models researched by previous authors, namely, factors related to suppliers and their influence on project success. The responses are recorded in Table 4.7 below.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Rating Average</th>
<th>Item-Total Corr.</th>
<th>Alpha if deleted</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier delivery capability and reliability influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>36%</td>
<td>64%</td>
<td>4.64</td>
<td>0.6567</td>
<td>0.796</td>
<td>0.485</td>
</tr>
<tr>
<td>Supplier technical capability influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>48%</td>
<td>52%</td>
<td>4.52</td>
<td>0.6796</td>
<td>0.789</td>
<td>0.505</td>
</tr>
<tr>
<td>Supplier commitment and culture influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>44%</td>
<td>52%</td>
<td>4.48</td>
<td>0.5995</td>
<td>0.815</td>
<td>0.580</td>
</tr>
<tr>
<td>Supplier’s support services and problem solving capabilities influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>40%</td>
<td>60%</td>
<td>4.60</td>
<td>0.7115</td>
<td>0.781</td>
<td>0.495</td>
</tr>
<tr>
<td>Supplier’s access to resources (finances, technical staff, technology, “parent” company support, etc.) influences project success.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>47%</td>
<td>53%</td>
<td>4.53</td>
<td>0.5451</td>
<td>0.825</td>
<td>0.504</td>
</tr>
</tbody>
</table>

Average inter-item corr.: 0.521058
Cronbach alpha: 0.83

Table 4.7: Factors related to suppliers

Source: Researcher’s own design
Average mean score = 4.55; average standard deviation score = 0.514. Items marked with an asterisks (*) have one of the top three (3) scores based on the rating average.

In Table 4.7 above, sixty four (64) percent of the respondents strongly agreed and a further thirty six (36) percent agreed that supplier delivery capability is an important item that influences project success. Item one was the most important item in this group with an average rating score of 4.64. Fifty two (52) percent of the respondents strongly agreed and a further forty eight (48) percent agreed that the supplier technical capability influenced project success. Supplier commitment scored an average rating of 4.48, with forty four (44) percent of respondents agreeing supplier commitment influenced project success; a further fifty two (52) percent of respondents strongly supported this statement while four (4) percent remained neutral. One hundred (100) percent of respondents agreed to strongly agree on the influence of the supplier’s support services and problem solving capabilities on project success, a similar result, one hundred percent of respondents agreed to strongly agreed, was obtained for the supplier’s access to resources.

The overall rating average score of 4.55 indicates that factors related to suppliers have an influence on the success of a project.

Figure 4.7 below gives a graphical representation of the ratings average versus the statements made.
4.3 VALIDATION OF HYPOTHESIS AND RELATIONSHIP BETWEEN VARIABLES

The results of survey validate the revised hypothesis and therefore, the null hypotheses ($H_02 - H_07$) stipulated below are false,

$H_02 = $ Factors related to the project manager has no influence on project success.

$H_03 = $ Factors related to the project team has no influence on project success.

$H_04 = $ Factors related to the organisation has no influence on project success.

$H_05 = $ Factors related to the external environment has no influence on project success.

$H_06 = $ Factors related to tools and techniques has no influence on project success.

$H_07 = $ Factors related to the suppliers has no influence on project success.
Therefore, the factors that have been identified have a relation on the success of projects.

4.4 CONCLUSION

In this chapter, the empirical results were discussed. The chapter analysed the data obtained from the questionnaire that was sent to 107 employees of the selected organisation. The questions asked were specifically concerned with factors related to project success at the selected organisation. The factors were grouped in order for the respondent to select the most important factor in the group specified. The lowest average rating for a factor was 3.79, indicating that all respondents felt that the factors selected had an influence on project success.

In Chapter 5, the summary, conclusions and recommendations will be presented. A brief comparison on the findings of the study and previous research will also be given thereafter the managerial implications of the empirical findings for the selected organisation will be discussed.
CHAPTER 5

FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter, a brief summary on the results of the survey is presented. After presenting the empirical results of the research in chapter 4, the implications of these results will now be discussed in the light of the literature reviewed. The purpose of this chapter is to draw conclusions from the literature and the empirical findings about the factors influencing project success at the selected organisation. Recommendations will also be made as to how the organisation can improve the success of projects.

5.2 FACTORS RELATED TO THE PROJECT MANAGER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commitment</td>
<td>Effective leadership</td>
<td>Effective leadership</td>
</tr>
<tr>
<td>2</td>
<td>Ability to co-ordinate</td>
<td>Situational management</td>
<td>Competency</td>
</tr>
<tr>
<td>3</td>
<td>Effective leadership</td>
<td>Efficient management of resources</td>
<td>Efficient management of resources</td>
</tr>
</tbody>
</table>

Table 5.1: Factors related to the Project Manager/Leadership

Source: Researcher’s own design

In this study, the three most important factors related to the the project manager were effective leadership, competency of the project manager and his/her ability to efficiently manage resources. In an earlier study conducted by Hyväri (2006), the important factors were commitment, the project
Commitment and situational leadership were ranked at fifth and sixth position respectively. This is in contrast to the studies of Mishra et al. (2011), whose respondents selected situational leadership as the second most important characteristic in a project manager.

The ranking for commitment of the project manager in this study is distinctly different from the study of Hyväri (2006), who ranked commitment as the number one factor. Mishra et al. (2011) ranked commitment of the project manager in position four with a mean rating of 4.33, compared to fifth position in the current study with a mean rating of 4.31. The results between the current study and Mishra et al. (2011) compare favourably.

Mishra et al. (2011) considers emotional intelligence, ranked fifth in their survey, to be of considerable importance in project success, while in this study, it ranked the lowest of the factors related to the project manager at seventh place. Unfortunately, Hyväri (2006) did not include emotional intelligence as a factor. It should be noted the organisation could possibly be influenced by a western culture as all automotive OEM’s in the Eastern Cape have parent companies based in Europe or the United States of America. Therefore the statements made by Mishra et al. (2011) have some relevance from the perspective of eastern versus western culture. Kerzner (2001) has noted that project managers need to adapt to the culture they find themselves in. From this study, it can be concluded that effective leadership is a highly critical factor with regards to the project manager’s characteristics.

Based on the literature reviewed and the results of the survey, it is recommended that the organisation investigated focus their efforts on:

- Identifying leaders that have the potential to be effective leaders and secondly,
• develop these leaders by providing them with the tools and guidance to do their jobs effectively.

It is also recommended that further studies be conducted into identifying tools and techniques that will help identify effective project management leaders, and it should also be noted that career paths should be specifically designed for these individuals.

5.3 FACTORS RELATED TO THE PROJECT TEAM

<table>
<thead>
<tr>
<th>Rank</th>
<th>Factors Related to Project Team Members</th>
<th>Hyväri, 2006</th>
<th>Mishra et al. 2011</th>
<th>Current study; 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commitment Proper communication</td>
<td>Proper communication</td>
<td>Ability to handle unexpected crisis and deviations from plan</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Communication Commitment Commitment</td>
<td>Commitment</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Technical Background Cooperation among members</td>
<td>Cooperation among members</td>
<td>Effective monitoring and feedback</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2: Factors Related to Project Team Members

Source: Researcher’s own design

The study conducted by Mishra et al. (2011) yielded the following factors, ranked in order of importance: proper communication, commitment of the team and cooperation among the team members as being the most critical factors towards project success in the team. According to Mishra et al. (2011) the findings match those of similar studies conducted by Hyväri (2006) and Belassi and Tukel (1996). Mishra et al. (2011) further state that the technical background of the project team secured fourth rank in their study. Table 5.2 above indicates the ranking of the factors.

The current study ranked the ability of the team to handle unexpected crisis as the most important factor, followed by proper communication and effective monitoring and feedback. Based on the literature reviewed, it is clear that the project team cannot foresee all the problems related to the project, but better
planning upfront and a thorough risk analysis are essential for project success. The researcher has noted that the factors receiving the highest rank in the tools and techniques influencing project success are indeed proper planning and risk analysis, which are ranked first and second respectively.

Commitment of the team ranked at fifth position in the current study, followed by the technical background, ranked at sixth place. It is clear from the response rate in both, factors related to the project team and factors related to the project manager, that commitment is either not important or respondents feels that commitment is not an issue within the selected organisation. Further investigation will need to be conducted in order to determine the discrepancies between the past and present results.

It is clear from this study and the literature reviewed that the need for the team to handle unexpected crisis to improve project success, is a critical factor. Furthermore, it is clear from the past and present studies, that proper communication is a vital contributing factor towards project success.

It is recommended that the selected organisation focus their efforts on providing training that will assist project managers in proper planning and risk analysis of the projects undertaken. It is also recommended that the organisation provides an environment and tools to improve proper communication between team members. Further studies should also be conducted on the greatest potential risks for automotive OEM’s and how to mitigate these risks, and effective project closure meetings could be an essential tool for mitigating risks.

Further studies should be done on the size and type of the projects undertaken at the organisation, the success rate of the projects as well as the size of the team and the methodology used in carrying out different projects, e.g. ad-hoc projects, iterative projects, agile projects and traditional projects.
5.4 FACTORS RELATED TO THE ORGANISATION

<table>
<thead>
<tr>
<th>Rank</th>
<th>Factors Related to the Organization</th>
<th>Hyvärö, 2006</th>
<th>Mishra et al., 2011</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Top management support</td>
<td>Clear work definition</td>
<td>Top management support</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Clear organization/job descriptions</td>
<td>Top management support</td>
<td>Support of functional managers</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Project organization structure</td>
<td>Degree of autonomy And Organization structure</td>
<td>Clearly defined working definitions</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3: Factors Related to the Organization

Source: Researcher’s own design

The study conducted by Mishra et al. (2011) ranked clear work definition as the most important factor in project success related to the organisation. This was followed by top management support, ranked second. Degree of autonomy and organisational structure were both ranked third as Mishra et al. (2011) felt that the differences between them were of very little significance.

As can be seen in Table 5.3 above, the study of Hyvärö (2006) ranked top management support as the most important factor. Clear organization/job descriptions and organization structure were ranked second and third respectively. According to Mishra et al. (2011) Belassi and Tukel (1996) identified the structure of the organisation as the most important factor, this was followed by top management support and lastly, the support received from functional managers.

As can be seen from the results in Table 5.3, this study placed top management support at first place, followed by support from functional
managers and clearly defined working definitions. The results of the last four studies are similar, except for the degree of autonomy, which is a “new” factor identified by Mishra et al. (2011). The researcher of this study included degree of autonomy in the organisational factors as he felt that the degree to which project managers or team members within a project are allowed freedom to do their work, is largely influenced by organisational factors and how project management is holistically viewed by the organisation.

Organisational culture, a “new factor”, was ranked fourth and hence the author of this study supports Mishra et al. (2011) in their statement that further research into the organisational culture needs to be conducted to determine which factors of organisational culture have the greatest influence on project success.

It is clear from this study, previous studies and the literature reviewed that top management support is a crucial factor towards project success. Top management should not only understand the needs of the project, but should also support project managers to enable lower costs, improved quality and reduced time in completing projects successfully. Top management should also review meeting minutes of project closure meetings to understand where problems were experienced and why these problems hindered progress, and this will enable top management to implement systems that will provide better support to project managers in their tasks.

Clearly defined working definitions was identified as a very important factor influencing project success. Further studies should be conducted into work definitions of individuals as well as teams, to determine the current situation/climate at the organisation.
5.5 FACTORS RELATED TO THE EXTERNAL ENVIRONMENT

<table>
<thead>
<tr>
<th>Rank</th>
<th>Factors Related to the Environment</th>
<th>Hyväri, 2006</th>
<th>Mishra et al., 2011</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Client</td>
<td>Client’s knowledge/experience</td>
<td>Availability of suppliers/sub-contractors</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Technological environment</td>
<td>Client type/size</td>
<td>Client’s knowledge/expectations</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Subcontractors</td>
<td>Regulatory environment</td>
<td>Technological environment*</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.4: Factors Related to the Environment

Source: Researcher’s own design

The factors related to the external environment receiving the highest ranking in the study conducted by Mishra et al. (2011), are the client’s knowledge/experience, client’s type/size and the regulatory environment. According to Mishra et al. (2011) the study conducted by Hyväri (2006) identified clients as the most critical success factor followed by the technological environment and economic environment.

Mishra et al. (2011) added the regulatory environment as a new factor in their study, but this factor did not receive a high ranking in the pilot study that was conducted and was removed from the questionnaire.

It is clear from this study and previous studies, that the client’s knowledge and expectations as well as the technological environment are important factors when considering factors related to the environment. From the current study, it is clear that the availability of suppliers plays a critical factor towards project success. It is recommended that OEM’s and government support local suppliers to ensure that jobs are created locally, and government should
also incentivise localisation projects to ensure that OEM’s benefits from support given to local suppliers. OEM’s could also offer training to suppliers to:

- Improve the supplier’s processes, e.g. by implementing lean systems.
- Reduce waste and become environmentally friendly.
- Improve the supplier’s value chain by utilising the OEM’s partners and thereby negotiating better rates for materials and transport.
- Provide resources and technology to help supplier to remain globally competitive.

5.6 FACTORS RELATED TO TOOLS AND TECHNIQUES

<table>
<thead>
<tr>
<th>Rank</th>
<th>Hyvärri, 2006</th>
<th>Mishra et al., 2011</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
<td>Resource management</td>
<td>Proper planning/scheduling</td>
</tr>
<tr>
<td>2</td>
<td>N/A</td>
<td>Monitoring/ control</td>
<td>Risk analysis</td>
</tr>
<tr>
<td>3</td>
<td>N/A</td>
<td>Proper planning/scheduling And Cost estimation/ budgeting</td>
<td>Proper Cost estimation/ budgeting</td>
</tr>
</tbody>
</table>

Table 5.5: Factors related to tools and techniques

Source: Researcher’s own design

Mishra et al. (2011) were the first researchers to use tools and techniques as a critical factor in project success. In their studies they identified resource management as the most important factor towards project success, and this was followed by monitoring and control. Mishra et al. (2011) state that the findings support their earlier respondents’ results for critical qualities in a project manager where it was found that efficient management of resources
was the third most important characteristic of a project manager. Planning and scheduling shared third place with cost estimation/budgeting in the Mishra et al. (2011) study. Risk analysis received fifth position in the study conducted by Mishra et al. (2011), while in the current study risk analysis received the second highest ranking. As mentioned earlier, proper planning and risk analysis received the first and second highest ranking in this study.

It is clear from this study that the organisation should spend more time in proper planning and scheduling as this is a critical factor towards project success. The organisation should also ensure that individuals involved in projects receive adequate training to ensure they are thoroughly trained in project planning and risk analysis. As stated earlier, thirty one (31) percent of respondents although involved in projects, had not received any formal training in project management methodologies.

Service providers offering project management programs should clearly focus on proper planning, risk identification, planning for risk and developing contingency plans that will minimise changes to the scope of the project. It is recommended that further studies are conducted to determine the effectiveness of project management training programs at the OEM investigated.

### 5.7 FACTORS RELATED TO THE SUPPLIERS

<table>
<thead>
<tr>
<th>Factor related to suppliers/sub-contractors</th>
<th>Supplier delivery capability and reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Table 5.6:** Factors related to suppliers

**Source:** Researcher’s own design
Based on the knowledge of the researcher and the literature reviewed, factors related to the suppliers was added as a critical success factor towards project success, and as stated earlier, ninety six (96) percent of respondents supported this factor. Supplier delivery capability and reliability was ranked at position one. Supplier support services and problem solving capability was ranked at position two followed by the supplier’s access to resources.

It is recommended that OEM’s thoroughly investigate suppliers contracted to work on projects. Systems and checklists are to be developed that will ensure supplier’s selected for project work are more than capable of supplying goods and services to support the project. A thorough checklist should be developed to do a thorough background check on the proposed suppliers. The checklist could include some of the following points:

- Supplier Culture.
- Technical know-how and status.
- Delivery capability.
- Supplier’s status and reputation.
- Processes and procedures.
- Financial status of the supplier.
- Support from external resources.
- Back-up support after completion of work (costs of service to be stipulated).

5.8 LIMITATIONS OF THE STUDY

As with all research papers and findings, there are limitations that need to be taken into consideration. The response rate of 43% can be considered a possible limiting factor. Researcher, Hyvärri (2006) had a similar limitation in her survey with only twenty five (25) persons responding, after having distributed in excess of four hundred (400) questionnaires. Hyvärri (2006) states that similar studies by Delile and Thomas (2002) had received approximately 40 – 50 responses and the data was considered representative. The response rate achieved may be regarded as acceptable,
but a higher response rate was expected. Possible reason for the high percentage of non-respondents can possibly be attributed to the following:

• Certain respondents were not familiar with answering questionnaires
• Lack of time
• Length of the questionnaire

The demographics of the sample in terms of gender are not balanced, and unfortunately, the automotive industry is dominated by males and hence the high percentage - seventy seven (77) percent, of respondents are males compared to twenty three (23) percent females. The gender was not the only demographic representation that was unbalanced, but also the quota in terms of, tenure at organisation, position within organisation and experience in current position.

Despite these limitations this study has a valuable contribution to the literature on the factors influencing project success at organisations. A qualitative study is recommended to investigate current project management programs offered to employees, and the policies and procedures governing supplier selection. A thorough investigation into employees work definitions could yield some interesting results.

5.9 CONCLUSION AND RECOMMENDATIONS FOR FURTHER STUDIES

The global market place has ensured that there is always constant change within the workplace. Organisations who continue to survive in the fast-paced automotive industry are those who are able to read the market trends and adapt to changing customer demands. Those organisations that are able to efficiently implement changes to meet these demands are reaping the benefits. Implementing change often involves the use of project management methodologies to bring about these changes. Recent studies have proved that not only are the tangible tools of project management affecting project success, but also the human side of project management.
The study undertaken clearly shows that human factors influence project success at the automotive OEM investigated. The project manager, the project team and the support received from the organisation played a crucial role in project success. Project success is also influenced by external factors as well as the availability of suppliers that can support projects at automotive OEM’s. The traditional tools and techniques and the correct use of them were also identified as a critical factor influencing project success.

This study has shown that project success should be reviewed in a holistic manner taking into account both the tangible and intangible factors that could possibly influence project success. Similarities with previous studies could be an indication that there are certain factors that remain important no matter the size of the project, the nature of the project or the demographic composition of the respondents. The instrument constructed for the study yielded reliable cronbach Alpha value above 0.7, showing an acceptable measuring instrument was constructed for the survey.

It can therefore safely be concluded that the empirical results have made a valuable contribution towards the field of study in factors influencing project success at an automotive OEM. The more effective the OEM is at improving project success, the greater the growth of business and national economies.
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## APPENDIX 1 - (Hyväri, 2006) - Number of Success/Failure Factors

### 1. Factors Related to Project

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of respondents selecting factor as the most important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size and value</td>
<td>2</td>
</tr>
<tr>
<td>Having a clear boundary</td>
<td>4</td>
</tr>
<tr>
<td>Urgency</td>
<td>1</td>
</tr>
<tr>
<td>Uniqueness of project activities</td>
<td>3</td>
</tr>
<tr>
<td>Density of the project network (in-dependencies between activities)</td>
<td>4</td>
</tr>
<tr>
<td>Project life cycle</td>
<td>1</td>
</tr>
<tr>
<td>End-user commitment*</td>
<td>16</td>
</tr>
<tr>
<td>Adequate funds/resources*</td>
<td>15</td>
</tr>
<tr>
<td>Realistic schedule</td>
<td>9</td>
</tr>
<tr>
<td>Clear goals/objectives*</td>
<td>19</td>
</tr>
</tbody>
</table>

### 2. Factors Related to the Project Manager/Leadership

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of respondents selecting factor as the most important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to delegate authority</td>
<td>5</td>
</tr>
<tr>
<td>Ability to trade off</td>
<td>1</td>
</tr>
<tr>
<td>Ability to co-ordinate*</td>
<td>12</td>
</tr>
<tr>
<td>Perception of role and responsibilities</td>
<td>3</td>
</tr>
<tr>
<td>Effective leadership*</td>
<td>9</td>
</tr>
<tr>
<td>Effective conflict resolution</td>
<td>2</td>
</tr>
<tr>
<td>Having relevant past experience</td>
<td>3</td>
</tr>
<tr>
<td>Management of changes</td>
<td>5</td>
</tr>
<tr>
<td>Contract management</td>
<td>1</td>
</tr>
<tr>
<td>Situational management</td>
<td>6</td>
</tr>
<tr>
<td>Competence</td>
<td>8</td>
</tr>
<tr>
<td>Commitment*</td>
<td>16</td>
</tr>
<tr>
<td>Trust</td>
<td>3</td>
</tr>
<tr>
<td>Other communication</td>
<td>1</td>
</tr>
</tbody>
</table>
### 3. Factors Related to Project Team Members

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Background*</td>
<td>18</td>
</tr>
<tr>
<td>Communication*</td>
<td>22</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>4</td>
</tr>
<tr>
<td>Effective monitoring and feedback</td>
<td>7</td>
</tr>
<tr>
<td>Commitment*</td>
<td>23</td>
</tr>
<tr>
<td>Other scope known by members also</td>
<td>1</td>
</tr>
</tbody>
</table>

### 4. Factors Related to the Organization

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering Committee</td>
<td>11</td>
</tr>
<tr>
<td>Clear organization/job descriptions*</td>
<td>17</td>
</tr>
<tr>
<td>Top management support*</td>
<td>21</td>
</tr>
<tr>
<td>Project organization structure*</td>
<td>12</td>
</tr>
<tr>
<td>Functional manager’s support</td>
<td>9</td>
</tr>
<tr>
<td>Project champion</td>
<td>5</td>
</tr>
</tbody>
</table>

### 5. Factors Related to the Environment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitors</td>
<td>5</td>
</tr>
<tr>
<td>Political environment</td>
<td>4</td>
</tr>
<tr>
<td>Economic environment</td>
<td>10</td>
</tr>
<tr>
<td>Social environment</td>
<td>7</td>
</tr>
<tr>
<td>Technological environment*</td>
<td>16</td>
</tr>
<tr>
<td>Nature</td>
<td>1</td>
</tr>
<tr>
<td>Client*</td>
<td>22</td>
</tr>
<tr>
<td>Subcontractors*</td>
<td>11</td>
</tr>
</tbody>
</table>

Indicates the highest factor in the group (*)
APPENDIX 2 - (Mishra et al., 2011) – Identification of Critical Success Factors in Project Based Organisations

Factors related to the project
- Adequate funds/resources
- Project having clear scope (3)
- Clear goals/objectives (1)
- Realistic schedule (2)
- Uniqueness of project activities
- Size and value of project (3)

Factors related to the project manager
- Ability to delegate authority
- Ability to motivate
- Effective conflict resolution
- Ability to co-ordinate
- Commitment (4)
- Effective leadership (1)
- Situational Management (2)
- Relevant experience
- Competence (4)
- Perception of role and responsibility
- Efficient management of resources (3)
- Emotional intelligence

Factors related to the Project Team
- Technical background of project team
- Commitment of the team (2)
- Level of trust among team members
- Cooperation among members (3)
- Ability to handle unexpected crisis and deviations from plan
• Effective monitoring and feedback
• Proper communication (1)

Factors related to the organization
• Degree of autonomy (3)
• Top management support (2)
• Organization structure (3)
• Functional manager’s support
• Monitoring committee
• Clear work definition (1)

Factors related to the environment
• Competitors
• Political environment
• Economic environment
• Social environment
• Technological environment
• Clients’ knowledge/experience (1)
• Subcontractors
• Regulatory environment (3)
• Client type/size (2)

Factors related to tools and techniques
• Proper planning/scheduling (3)
• Monitoring/ control (2)
• Cost estimation/ budgeting (3)
• Adherence to procedures
• Quality control
• Risk analysis
• Resource management (1)
APPENDIX 3 - Disadvantages of the traditional/classical organization

1. No one individual is directly responsible for the total project (i.e., no formal authority; committee solutions).

2. It does not provide the project-oriented emphasis necessary to accomplish the project tasks.

3. Coordination becomes complex, and additional lead time is required for approval of decisions.

4. Decisions normally favour the strongest functional groups.

5. There is no customer focal point.

6. Response to customer needs is slow.

7. There is difficulty in pinpointing responsibility; this is the result of little or no direct project reporting, very little project-oriented planning, and no project authority.

8. Motivation and innovation are decreased.

9. Ideas tend to be functionally oriented with little regard for ongoing projects.

Source: Kerzner (2001)
Dear Respondent

I am a post-graduate student studying towards my MBA (Masters in Business Administration) at the Nelson Mandela Metropolitan University Business School. My research project entails an investigation into how leadership development could be improved at our company. The empirical results of the study will be made available to the participants on request.

You are part of our selected sample of respondents whose views and contribution we seek on the above-mentioned matter. We would therefore appreciate it if you could answer a few questions in this regard, which should not take more than twenty minutes of your time. Please note that the information gathered will not be used against any person or the company in any way and that all your responses will be strictly confidential. Please return the completed questionnaire by the 10th of September 2012. We thank you in advance for your highly appreciated contribution towards this study.

There are no correct or incorrect answers. Please answer the questions as accurately as possible. For each statement, tick the number which best describes your experience. For example, if you strongly agree with the statement, tick the number 5. If you strongly disagree with the statement, tick the number 1. Tick only one answer for each statement, but answer ALL QUESTIONS please.

Thank you very much.
Dion Williams
Research supervisor: Mr M. Keet (Tel. 082 --- ----)
SECTION A – RESPONDENT’S PROFILE

Please indicate you response by ticking off the block, or by writing your answer in the space provided

1.1 Please indicate your TITLE (Mr., Miss, Dr., etc.):

1.2 GENDER: Male ☐ Female ☐

1.3 What is your highest qualification?

<table>
<thead>
<tr>
<th>Grade 12</th>
<th>☐</th>
<th>Honours degree</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Diploma</td>
<td>☐</td>
<td>Master’s degree</td>
<td>☐</td>
</tr>
<tr>
<td>Degree</td>
<td>☐</td>
<td>Doctoral degree</td>
<td>☐</td>
</tr>
<tr>
<td>Post-graduate Diploma</td>
<td>☐</td>
<td>Other (please specify)</td>
<td>☐</td>
</tr>
</tbody>
</table>

1.4 What is your age?

<table>
<thead>
<tr>
<th>AGE GROUP:</th>
<th>20 – 29</th>
<th>30 – 39</th>
<th>40 – 49</th>
<th>50 – 59</th>
<th>&gt;60</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

1.5 What is the nature of the position that you hold (e.g Manager, Assistant Manager etc)?

________________________________________________________

1.6 HOW LONG have you been working for your present employer (in years?)

<table>
<thead>
<tr>
<th>1 – 4</th>
<th>5 – 9</th>
<th>10 – 14</th>
<th>15 – 19</th>
<th>&gt;20</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

1.7 How many years of EXPERIENCE have you got in your present job?

<table>
<thead>
<tr>
<th>1 – 4</th>
<th>5 – 9</th>
<th>10 – 14</th>
<th>15 – 19</th>
<th>&gt;20</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
1.8 Which Department are you employed in?

________________________________________________________________________

1.9 Have you ever received any training in Project Management?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

1.10 If your answer was Yes in question 1.9, please indicate below which forms of leadership training you received.

<table>
<thead>
<tr>
<th>1.10.1</th>
<th>Attending Project Management seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10.2</td>
<td>Formal classroom training</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10.3</td>
<td>In-house training programmes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10.4</td>
<td>Mentoring or Coaching training</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10.5</td>
<td>Online training</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10.6</td>
<td>Other (Please state)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SECTION B – LATENT VARIABLES

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Which criteria do you use to measure your project success?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS1</td>
<td>A project is successful when it is completed within the budgeted cost</td>
<td>1</td>
</tr>
<tr>
<td>PS2</td>
<td>A project is successful when it is at the proper performance, quality or specification level</td>
<td>1</td>
</tr>
<tr>
<td>PS3</td>
<td>A project is successful when it is accepted by the customer or end user.</td>
<td>1</td>
</tr>
<tr>
<td>PS4</td>
<td>A project is successful when it is completed within the allocated time frame</td>
<td>1</td>
</tr>
<tr>
<td>PS5</td>
<td>A project is successful when it is completed within the project scope</td>
<td>1</td>
</tr>
</tbody>
</table>

**Factors related to the Project**

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP1</td>
<td>Adequate funds/resources are required if a project is to be successful at my organisation</td>
<td>1</td>
</tr>
<tr>
<td>FP2</td>
<td>Projects should have a clear scope if it is to be successful</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP3</td>
<td>The project should have clear goals/objectives if it is to be successful</td>
<td>1</td>
</tr>
<tr>
<td>FP4</td>
<td>Projects with a realistic schedule have a better chance of being successful</td>
<td>1</td>
</tr>
<tr>
<td>FP5</td>
<td>The size and value of a project determines how successful it will be</td>
<td>1</td>
</tr>
<tr>
<td>FP6</td>
<td>The uniqueness of the project activities determines if it will be successful</td>
<td>1</td>
</tr>
<tr>
<td>STATEMENT</td>
<td>Strongly Disagree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Factors related to the Project Manager</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM1 A Project Manager with a strong ability to delegate authority will ensure project success</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM2 Project Managers who have the ability to motivate all members of the project team will ensure project success</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM3 Effective conflict resolution is a skill required by a project manager for implementing projects successfully</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM4 For a project to be successful, project managers need good co-ordination skills</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM5 A project manager with a strong commitment to succeed is needed to ensure that the project is successful</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM6 Project managers should lead effectively if a project is to be successful</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM7 Relevant experience of the project manager is an important contributor towards project success</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM8 A project manager should be competent in his or her role as a project manager if the project is to be successful</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM9 Project managers should have a clear perception of their roles and responsibilities if the project is to be successful</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM10 Project managers who are able to manage resources efficiently have a better chance of project success</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM11 Project managers need a high degree of emotional intelligence to ensure project success.</td>
<td>1</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>PM12</td>
<td>Situational management is an important skill a project manager needs to ensure projects are implemented successfully.</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PM13</td>
<td>Project managers who are trained in current project management methodologies have a better chance of implementing projects successfully</td>
<td></td>
</tr>
</tbody>
</table>

### Factors related to the Project Team

<table>
<thead>
<tr>
<th>PT1</th>
<th>The stronger the technical background of project team the more successful the project will be.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT2</td>
<td>The stronger the commitment of the team members, the more successful the project will be.</td>
</tr>
<tr>
<td>PT3</td>
<td>The level of trust amongst team members plays an important role in project success.</td>
</tr>
<tr>
<td>PT4</td>
<td>The level of co-operation amongst team members plays an important role in project success</td>
</tr>
<tr>
<td>PT5</td>
<td>The ability of the project team to handle unexpected crisis and deviations from plan (including problem solving) is important for project success.</td>
</tr>
<tr>
<td>PT6</td>
<td>Effective monitoring and feedback is required for successful projects</td>
</tr>
<tr>
<td>PT7</td>
<td>Proper communication between team members is vital for project success</td>
</tr>
<tr>
<td>PT8</td>
<td>Team members need clear roles and responsibilities for project success.</td>
</tr>
<tr>
<td>STATEMENT</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Factors related to the Organisation.</strong></td>
<td></td>
</tr>
<tr>
<td>PO1</td>
<td>Organisations who allow a high degree of autonomy are more likely to ensure successful implementation of projects</td>
</tr>
<tr>
<td>PO2</td>
<td>Top management support is crucial for project success</td>
</tr>
<tr>
<td>PO3</td>
<td>The structure of an organisation is important for project success</td>
</tr>
<tr>
<td>PO4</td>
<td>Project managers who have the support of functional managers stand a better chance of implementing project successfully</td>
</tr>
<tr>
<td>PO5</td>
<td>Organisations that use monitoring committees to manage projects have a better chance of project success.</td>
</tr>
<tr>
<td>PO6</td>
<td>Organisations that clearly define working definitions have a better chance of achieving project success.</td>
</tr>
<tr>
<td>PO7</td>
<td>Organisations that clearly define job descriptions have a better chance of project success.</td>
</tr>
<tr>
<td>PO8</td>
<td>Clear channels for elevating concerns/problems related to the project will strongly influence project success.</td>
</tr>
<tr>
<td>PO9</td>
<td>Organisations that have support from their “parent” company’s have a better chance of implementing projects successfully.</td>
</tr>
<tr>
<td>PO10</td>
<td>Organisational culture has a big influence on a project being implemented successfully.</td>
</tr>
<tr>
<td>PE1</td>
<td>The Political environment influences project success</td>
</tr>
<tr>
<td>PE2</td>
<td>The Economic environment influences project success</td>
</tr>
<tr>
<td>PE3</td>
<td>The Social environment influences project success</td>
</tr>
<tr>
<td>PE4</td>
<td>The Technological environment influences project success</td>
</tr>
<tr>
<td>PE5</td>
<td>The Client’s knowledge/expectations influences project success</td>
</tr>
<tr>
<td>PE6</td>
<td>The Regulatory environment influences project success</td>
</tr>
<tr>
<td>PE7</td>
<td>Client size and type influences project success</td>
</tr>
<tr>
<td>PE8</td>
<td>The countries infrastructural resources influence project success</td>
</tr>
<tr>
<td>PE9</td>
<td>The relationship the organisation has with trade unions influences project success</td>
</tr>
<tr>
<td>PE10</td>
<td>The availability of suppliers/sub-contractors influences project success</td>
</tr>
<tr>
<td>PE11</td>
<td>Competitors have an influence on project success</td>
</tr>
<tr>
<td>STATEMENT</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Factors related to tools and techniques.</strong></td>
<td>1</td>
</tr>
<tr>
<td>TT1 Proper planning/scheduling influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT2 Utilising monitoring/ control techniques influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT3 Proper Cost estimation/ budgeting influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT4 Adherence to procedures influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT5 Utilising quality control procedures influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT6 Doing proper risk analysis before the project commences influences project success</td>
<td>1</td>
</tr>
<tr>
<td>TT7 Utilising tools that optimise resource management influences project success</td>
<td>1</td>
</tr>
</tbody>
</table>

**Do you think that suppliers and subcontractors play a crucial role in project success at your organisation?**

Mark selection with an (X)

| Yes                                                                 |                  |
| No                                                                  |                  |

**If your answer to question above is YES, please answer the following question**
<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factors related to suppliers and sub-contractors.</strong></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>FS1 Supplier delivery capability and reliability influences project success</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>FS 2 Supplier technical capability influences project success</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>FS 3 Supplier commitment and culture influences project success</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>FS 4 Supplier’s support services and problem solving capabilities influences project success</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>FS 5 Supplier’s access to resources (finances, technical staff, technology, “parent” company support, etc.) influences project success</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

THANK YOU VERY MUCH FOR YOUR KIND CO-OPERATION !!!