MANAGING SMALL AND MEDIUM ENTERPRISES USING PROJECT MANAGEMENT PRINCIPLES

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DECLARATION

I, **Faith Chivimbiso Wadzwanya**, declare that the contents of this thesis represent my own unaided work, and that this thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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Signed   **Date**

ABSTRACT

Although SMEs are aware of *project management,* it seems that a vast majority of firms are not actually well-informed about what project management is, and therefore, might not even be adhering to project management principles. Hence, the main objective of this study was to determine the extent to which SMEs (involved in construction, events and information technology and located in the Cape Metropolitan area in South Africa) apply project management principles. This study used a mixed method approach (both qualitative and quantitative) and various relevant instruments to collect and analyse data. A total of 223 questionnaires were administered to employees working in conjunction with a project management department, and five face-to-face interviews were conducted with owner-managers of selected SMEs. The statistical package for social science (SPSS) was used to analyse the quantitative data with results presented in a tabulated format; content analysis was used to transcribe qualitative data and categorise this data into themes.

The study found that the project management sector is still predominately male-dominated, and project teams are not selected on the basis of experience. Furthermore, those who lack experiences are not trained. The nature of work done, company understaffing, time and financial constraints and poor team dynamics were all cited as factors affecting the application of project management principles within SMEs.

Several recommendations emerged from the findings. First**,** it was recommended that women be empowered as active participants in project management, thereby reducing the evident gender imbalance; training and development should regularly be conducted to fully equip employees with vital skills and competencies. This will more strongly ensure that clients are satisfied with quality outcome and thereby establish a good reputation for SMEs. Project managers should create contingency plans for potential challenges. Additionally, the project manager should ensure that by virtue of the company being understaffed, specific roles and responsibilities of individuals should be clearly delineated, clearly communicated and clearly understood. Alternatively, the company may employ more personnel for particular projects, or independent contractors could be hired to assist. Moreover, time constraints can be eradicated by establishing timelines through the Gantt chart and measuring milestones. Finance and other resources should be allocated economically with and ongoing budget-cost analysis for monitoring expenditure. It was also deemed advisable that project managers send their teams for wellness training to avoid negative team dynamics, and as for labour unrest, senior managers should engage proactively with unions and delegates.

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DEDICATION

I dedicate this thesis to my beloved siblings: Felicity Simbiso, Farisai Ferbilyna and Farai Winios Clemency.

May this work be an inspiration to you.

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CHAPTER ONE
INTRODUCTION AND BACKGROUND

1.1 Introduction

The practice of *project management* has become widely applied in many organisations, suggesting that project management applications are vital to organisations. Turner, Ledwith and Kelly (2009:284) asserted that SMEs require project management to manage innovation in such a way that growth and satisfaction of strategic objectives can be achieved. However, while the concept of *project management* is recognised and its principles practiced to a degree by some SMEs, it seems that the vast majority of firms are not well-informed pertaining to project management and therefore, might not even be adhering to helpful project management principles.

SMEs apply project management techniques to innovate and grow their businesses (Ledwith, 2004). Turner *et al.* (2012:942) argued that although SMEs play a significant role in the economy, most projects within SMEs are managed by amateurs. Projects within SMEs fail frequently, owing to the fact that people managing these projects often multi-task, with project management not even being their field of specialisation (Turner *et al.,* 2012:942). Turner, Ledwith and Kelly (2009:282) were of the opinion that the smaller the company, the less likely it is to use project management principles. Ika (2012:27) avowed that poor performance in project management is common in Africa. Therefore, the problem statement of this study revolves around the fact that a significant proportion of small business owners (in Africa in particular) manage their projects without applying project management principles.

That said, the aim of this study was to determine to what extent Cape Town based SMEs apply project management principles and to understand the best principles that are suited for them. To attain this, questionnaires were administered to SMEs in the Cape Town Metropolis area. In analysing the generated data, the statistical SPSS software programme was utilised, so descriptive analysis underpinned the analysis of this study. In view of the foregoing, the sections of this thesis are as follows:

- *Chapter One* presents the rationale for this research, comprised of the background to the problem, the problem statement, research objective and questions. Additionally, the significance of this research and ethical considerations are expressed.
- *Chapter Two* comprises the literature analysis.
- *Chapter Three* consists of the methodology.
- *Chapter Four* comprises the findings and discussion of results.

- *Chapter Five* presents conclusions and recommendations.

1.2 Background

Project management is a well-established discipline that utilises tools and techniques to plan and implement projects (Murphy & Ledwith, 2007:153). Project management is believed to be a form of management that is fast growing (Oosthuizen & Venter, 2011:21). A study by *Keil et al.* (1995; cited in Desouza & Evaristo, 2006:414) stated that much of the work conducted by organisations are in the form of projects. That explains why most firms have shifted their focus from product-orientated to project-orientated.

Also, Schwalbe (2011:2) is of the opinion that project management principles can be applied in every industry. Concurring with the foregoing premise, Turner *et al.* (2012:942) estimated that 40% of SME turnover originates from projects.

Dai and Wells (2004:523) explained that even when project management principles have been applied, there is still a high failure rate of projects. According to Desouza and Evaristo (2006:414), projects fail for several reasons: lack of project management principles, poor communication, poor project estimation and ineffective budgeting.

Turner *et al.* (2012:945) revealed that SMEs are sceptical to use project management tools such as earned value method and critical path method. Sdrolias *et al.* (2005:47) also confirmed that SMEs are generally sceptical to advance tools that could exactly fit their needs. Given the views of Sdrolias *et al.,* (2005:51) and Turner *et al.* (2012:945), it seems that SMEs require project management principles to manage operations. A similar study by Turner *et al. (*2009:284) suggested that SMEs should utilise project management tools to achieve their strategic objectives in a manner that reduces inherent risks. Murphy and Ledwith (2007:154) citing the work of Baccarini (1999) argued that although project management is established to suit large enterprises with complex structures, modern methods of project management can be adopted to suit smaller organisations. It seems to be necessary for SMEs to develop improved project management tools and techniques to deal with unique challenges facing SMEs.

Notwithstanding the prevalent scholarship regarding SMEs and project management, Turner *et al.* (2012:942-956) proposed that SMEs need simpler, more people-focused forms of project management than traditionally used by larger organisations. Murphy and Ledwith (2007:153-166) examined the use of project management practices in small high-technology firms and in identifying factors that contribute to project success found that the existence of a project manager and project planning significantly contribute to the success of a project.

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Although the applicability of project management principles have been gauged from different perspectives, little is known about managing SMEs using project management principles, particularly in Cape Town. Most studies on project management do not concentrate on Cape Town-based SMEs but instead on SMEs in the developed Western world. Haupt (2007) focused on project management best practices in Southern Africa, Loo (2002) placed attention on project management best practices in Canada, White and Fortune (2002) focused on current practices of project managers, whereas Muriithi and Crawford (2003) looked at the reasons behind the differences in techniques in the developing world. This prompted this research to be focused on South Africa as a developing country. Therefore, the aim of this research is as follows:

- To determine the extent to which SMEs apply project management principles.

1.3 Statement of research problem

SMEs apply project management techniques to innovate and grow their businesses (Ledwith, 2004). Turner *et al.* (2012:942) argued that although SMEs play significant roles in the economy, most projects within SMEs are managed by amateurs. Projects within SMEs fail owing to the fact that people who manage these projects multi-task and project management is not necessarily their field of specialisation (Turner *et al.,* 2012:942). Turner, Ledwith and Kelly (2009:282) are of the opinion that the smaller the company, the less likely it is to use project management principles. Ika (2012:27) avowed that poor performance in project management is common in Africa. Therefore, the problem statement of this study revolves round the fact that a significant proportion of small business projects are managed without using proper project management principles.

1.4 Research questions

The purpose of this section is to outline the primary research question, followed by the secondary research questions. The research question investigated in this study is characterised into a primary research question and sub-research questions.

1.4.1 Primary research question

- To what extent do Cape Town based SMEs apply project management principles?

1.4.2 Sub-research questions

- What project management principles are best suited for SMEs?
- What project management tools and techniques are used by SMEs?
- What factors affect the application of project management principles within SMEs?

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1.5 Research objectives

The research objectives investigated in this study are grouped into a primary research objective and sub-research objectives.

1.5.1 Primary research objective

- To determine the extent to which Cape Town based SMEs apply project management principles.

1.5.2 Sub-research objectives

- To describe the project management principles that are best suited for SMEs.
- To explore the project management tools and techniques used by SMEs.
- To identify factors affecting the application of project management principles within SMEs.

1.6 Research design and methodology

The focus of this section is on research methodology, explaining the research design and methods utilised in the study, including population, sampling and data collection technique.

1.6.1 Research design

Burns and Bush (2005:104) listed three types of research design: exploratory, descriptive and explanatory. This researcher utilised both exploratory and descriptive research design. According to Mouton (2010:80), exploratory design is used to satisfy researcher curiosity and better understand a given topic. In line with this, the researcher conducted interviews with the owner-managers of selected firms to comprehend their experiences and perceptions pertaining to project management principles. Furthermore, the researcher utilised descriptive research. According to Burns and Bush (2005:110), descriptive design is used to describe answers to question of who, what, where, when and how. The researcher utilised descriptive design to determine the extent to which the personnel of SMEs apply project management principles

Furthermore, Brynard and Hanekom (2006:36) asserted that research design enables a researcher to be objective, to plan, structure and execute research to comply with the truth. Both researchers also point out that research methodology clarifies the type of research methods appropriate for use in any particular study, and decision can then be taken by the researcher on the methods employed to collect and analyse data. The researcher utilised both qualitative and quantitative methods in this present study, discussed below.

1.6.2 Research methods

The researcher utilised both quantitative and qualitative methods in this study.

1.6.2.1 Quantitative research method

As explained by Babbie and Mouton (2010:263), quantitative research methods require the researcher to have good communication skills to report the social phenomenon in a more objective way. Accordingly, questionnaires were administered to persons who work on projects to determine the extent to which project management principles are applied. The researcher developed a six-page questionnaire (Appendix B) designed in a funnel shape as such: the first section of the questionnaire was based on demographic information of respondents; the second section focused on project management as a recognised profession; the third section focused on fundamentals of project management; the fourth section focuses on the success factors; and the fifth section focused on project management tools selected from PMBoK.

1.6.2.2 Qualitative research method

Polonsky and Waller (2011:134) pointed out that the qualitative research method is concerned with soliciting the thoughts and feelings of the participants, and understanding the issue in- depth prior to drawing a conclusion. Therefore to achieve this, interviews were conducted with firm owner-managers to clarify their experiences and perceptions surrounding project management principles.

1.6.3 Population understudy

Population is defined as the total group from which a researcher obtains information and from which the units of analysis will be selected (McDaniel & Gates, 1998:301). The targeted population for this study is comprised of the owner-managers and personnel of building construction companies, event companies and information technology firms located in Cape Town. These participants were identified through a database and chosen because of their extensive involvement in projects.

1.6.4 Sample frame

According to Bryman (2004:87), it is difficult, time-consuming and expensive to target the whole population of a study. Hence, he recommended that a researcher should utilise a sampling frame. A *sampling frame* is representative of a group, sampled with the intention of obtaining information applicable for the whole group. The sample frame for this study was taken from permanent staff working in projects in the following SMEs in Cape Town: building and construction, event, and information technology.

1.6.5 Sampling methods

There are two basic types of sampling methods: probability and non-probability sampling. The researcher utilised a purposive sampling technique. According to Adler and Clark (2010:123), in *purposive sampling*, items for research are selected by the researcher and this choice remains supreme. The researcher hand-picked the respondents for this present study based on their characteristics and their experiences, attitudes and perceptions and their extensive involvement in projects.

1.6.6 Sampling size

The quantitative sample of the study consisted of 280 respondents. To achieve the correct sample size, the researcher utilised Raosoft (2009) software to calculate the sample size, and 223 respondents was the recommended number for a quantitative sample size for the study. This is further explained in Chapter Three.

Furthermore, all 20 project managers of the project management companies were selected as the qualitative sample size of the companies. However, only five respondents were available for an interview. The researcher then conducted intensive interviews with all five respondents.

1.7 Delineation of the research

According to Collis and Hussey (2003:128-129), limitations identify weaknesses in the research, while *delineation* explains the scope of the study as opposed to the holistic approach. Therefore, the study focused on the managing of small and medium enterprises using project management principles by the owner-managers of events, building construction, and information technology companies in Cape Town.

1.8 Ethical considerations

Saunders, Lewis and Thornhill (2009:183-184) stated that "ethics refer to the appropriateness of your behaviour in relation to the rights of those who become the subject of your work, or are affected by it". Hair *et al. (*2011:55) share a similar view with that of Saunders *et al.* (2009:184) that researchers must consider ethical considerations and possible dilemmas throughout the research. The ethical issues include, but are not limited to, coercing participation, causing potential physical or psychological harm, maintaining privacy and informing subject of the nature of the research.

The ethical principles in this study were in line with those of Hair (2011:55):

- The researcher received an ethical certificate from the Ethical Committee in CPUT before commencing the research.

- The researcher was granted permission letters by the owner-managers of events, building construction and information technology firms in Cape Town
- The researcher explained the purpose of the study to all respondents.
- The respondents were not forced to take part in the research.
- The respondents were free to withdraw from the study at any time.
- The respondents' information and personal details were strictly confidential.

1.9 Significance of the research

It is customary that as a researcher, one should be in a position to state the reasons for undertaking a specific research study. Project management principles remain one of the vital elements of any organisation regardless of industry. Previously, project management was limited to construction and information technology projects. In previous research pertaining to SMEs and project management, the issue of project management principles in SMEs has been given considerably less attention than for large organisations. In the South African context in particular, there is a dearth of research in this regard. This study, then, can certainly benefit organisations involved with projects, and even those not involved at the moment, because project management is a rapidly expanding discipline. The value and significance underlying this study is that it is a call to SMEs to start utilising project management principles for the improved management of their enterprise's projects.

1.10   Structure of the thesis
- *Chapter One:* this chapter introduces the study, explains the background and presents the rationale behind the entire study. The research question, objectives and delineation of the study are discussed. Additionally, the researcher explains the methodology utilised for the study.
- *Chapter Two:* this chapter deals specifically with the current work surrounding project management and the utilisation of project management principles.
- *Chapter Three:* this chapter explains the methodology that anchored this study. The researcher explains why qualitative and quantitative methods are adopted for data collection and analysis
- *Chapter Four:* this chapter presents the findings of this research, in tables, and discusses these finding, comparing them with literature.
- *Chapter Five:* this chapter concludes the study, summarising the most outstanding findings.

1.11 Conclusion

As mentioned in the problem statement, a significant proportion of small business owners manage their projects without utilizing project management principles. Hence, the main objective of the study was to determine the extent to which SMEs apply project management principles. The study utilised both quantitative and qualitative approaches to collect and analyse data. There were 223 questionnaires administered to employees, and five face-to-face interviews conducted with owner-managers of selected SMEs. The statistical package for social science (SPSS) was used to analyse the quantitative data, and content analyses for analysing the qualitative data. The results were presented in tabulated format. From the findings of the study, recommendations were made to owners of the selected project management companies.

CHAPTER TWO
LITERATURE REVIEW

"Apartheid neglected SMMEs and we really need serious commitment. To build and strengthen the SMME sector, extraordinary effort is required".

Rob Davies

2.1 Introduction

The previous chapter highlighted the rationale for this study, as the problem underpinning this research and the objectives thereof were explained. This was followed by the research questions and the significance of the study. To reiterate, the objective of the study was to determine whether SMEs apply project management principles in managing their projects. The main research question guiding this study was this: to what extent do Cape Town based SMEs apply project management principles in managing their businesses?

The aim of this chapter is to review current work pertaining to managing SMEs using project management principles. There are two sections in this chapter. The first section is structured accordingly:

- an overview of SMEs;
- project management in perspective;
- the importance of project management principles; and
- the importance of project management for small and medium-sized enterprises;

The second section is structured thus:
- factors influencing the application of project management principles;
- project management processes; and
- managing SMEs using project management.

2.2 An overview of small and medium enterprises

There is no universally accepted definition of *small and medium enterprises* (SMEs). Different bodies and countries hold different opinions as far as this subject is concerned. According to Aquil (2013:8), SMEs are generally firms which play a role in the economy and have a specific limit for their personnel and revenue. It seems that the definition of SMEs is based on economic (qualitative) and numerical (quantitative) parameters.

McAdam, Reid and Gibson (2004) postulate that over the decades the parameters of what constitutes an SME have altered slightly so there seems to be no real consensus as to what constitutes small or medium enterprise. To date, there is still confusion as to what really

constitutes an SME especially because universally, there is no single definition for an SME. There are, however, a few agreed upon parameters for distinguishing SMEs: risk, market share, management structure, small revenue and number of employees (Pedersen, Zachariassen & Arlbjorn, 2012:355).

Supporting the foregoing argument, scholarly articles pertaining to SMEs suggest that SMEs may differ from large organisations due to certain factors and according to Forsman (2008:606), these factors include, but are not limited to, inadequacy of resources, knowledge, deficiency of money, dependence on a small number of customers and the requirement for multi-skilled employees. Small and medium enterprises (SMEs) usually employ people to multi-task whereas large firms employ specialists to perform the same activities; hence, many SMEs do not have a rigid organisational structure (Agumba, 2006:10).

The following table highlights the different definitions pertaining to SMEs, by country.

Table 2.1: Different SME definitions

COUNTRY	DEFINITION		
Organisation for Economic Co-operation and Development (OECD)	A non-subsidiary independent firm which employs less than a number of employees given.		
Pakistan	According to Aquil (2013:8), an SME should be a firm that has a constant investment of at least 20 million Rupees, excluding land and fixed properties.		
Sindh	An SME according to Aquil (2013:8) is any enterprise that engages in manufacturing products and having a fixed investment up to 10 million Rupees including fixed assets.		
European Union (EU)	The European Commission (2008) defines medium, small and micro enterprises as follows:		
	Micro	Their employees are fewer than 10 employees and the revenue is less than 2 million Euros.	
	Small	The employees are fewer than 50 and income is less than 10 million Euros.	
	Medium	Their employees are fewer than 250 and the turnover is less than 50 million Euros.	
United States of America (USA)	A firm with fewer than 500 employees.		
South Africa (RSA)	The National Small Business (Act 26 of 2003) defines an SME as "a separate and distinct entity including cooperative enterprises and non-governmental organizations managed by one owner or more including its branches or subsidiaries if any is predominantly carried out in any sector or sub-sector of the economy mentioned in the schedule of size standards and can be classified as an SME by satisfying the criteria mentioned in the schedule of size standards."		
New Zealand	Businesses with fewer than twenty employees are SMEs (Kongolo, 2010:2290)		

The International Finance Corporation (2011:3) also attempted to define SMEs along the following parameters:

- SMEs are defined as registered businesses with fewer than 250 employees.
- They make a contribution towards employment and Gross Domestic Product (GDP).
- They grow in ways linked to the formalisation of an economy.
- They face difficulty in accessing financial services in many emerging markets.

Ghobadian and Gallear (1997) distinguish SMEs from large organisations with the use of six factors: processes, procedures, structure, contact, behaviour and people. The first two factors imply that SMEs involve less complicated management processes, whereas the last

two suggest a strong focus on people (Turner *et al.,* 2012:944-945). The following table explains these six factors:

Table 2.2: SMEs factors

Factors	Explanation
Processes	Murphy and Ledwith (2007:156) suggest that SMEs should aim to implement an easy approach towards the management of projects.
Procedures	The extent of standardisation and formalisation in SMEs is low; as a result SMEs are people-dominated as compared to large organisations which are system-orientated. Additionally, in SMEs, the processes are flexible and adaptable (Ghobadian & Gallear, 1997).
Structure	Aquil (2013:9) suggests that smaller companies tend not to employ project managers. Therefore, projects are managed by non-project managers.
People	SME employees prefer techniques which have been tried and tested rather than people focused (Ghobadian & Gallear, 1997).
Contact and behaviour	The way employees operate and behave is influenced by owner or manager attitudes in SMEs.

The preceding table explains factors used to distinguish between organisations and SMEs. On the right hand side are the factors and on the left are the explanations of the factors.

According to Niemen (2006:4), a business is considered an SME only if it is owned, operated, financed or managed independently by one or a few people without a formalised management arrangement, in such a manner that it is not a component of a large enterprise. It is evident that an SME is any organisation that is managed by relatively a few people and therefore, profit is limited to not more than (R 5 million) five million. As it seems that there is no consensus as to what constitutes an SME, this may cause confusion on the nature of SMEs. According to Fatoki (2014:922), SMEs are expected to be vital drivers towards addressing issues of job creation, sustainable growth and equitable distribution of income.

2.2.1 SMEs: A South African perspective

Many would agree that South Africa is regarded as a dynamic and industrialised nation which has a wide range of characteristics. According to Brijal, Naicker and Peters (2013:856), South Africa has a two-tiered economy with one rivalling other industrialised countries and the other with only the basic organisation. As South Africa endures high poverty levels, unemployment and unfairness, SMEs present a significant medium for addressing the challenges of job establishment, economic development and equity in South Africa (Garwe & Fatoki, 2012:448). Citing UNIDO (1999), Mahembe (2011:7) stated that SMEs represent 90% of private business and hence their contribution towards employment and GDP is more than 50%. The International Finance Corporation (2011:6) asserted that in a bid for SMEs to remain competitive, host governments need to be supportive towards the sector.

The government of South Africa believes that development and growth of the SME sector will ensure that the country's unemployment rate decreases. Henceforth over the past years, research has shown that providing finance for SMEs is one solution, but not the *only* solution: there must also be the introduction of other management strategies – such as project management and strategic management – to ensure that these firms survive longer and become stronger. The South African government has placed priority on entrepreneurship and the advancement of SMEs as the catalyst to achieving economic growth and development (DTI: online).

Since 1995, the South African SME sector has been promoted by the government's national economic growth objectives. The approach towards developing small businesses in South Africa was formulated in 1995; consequently the Small Business Act was promulgated in 1996 with the establishment of institutions such as the National Small Business Council and Ntsika Enterprise Agency. Despite government initiatives such as Small Enterprises Development Agency in 2004, there is still a high failure rate among SMEs (AFREC, 2005: online). Researchers have concluded that SMEs in South Africa fail because of lack of managerial skills (A3 Consulting, 2006: online). Much of the problem of managing SMEs can be attributed to insufficient experience. Against this backdrop, Pedersen *et al.* (2012), Aubry, Hobbs and Thuillier (2008), White and Fortune (2002) and Turner *et al.* (2012) have all suggested management strategies such as project management and risk management to address the issue of SME survival.

The survival of this sector in South Africa is crucial. The SME sector includes a broad range of businesses concerned with production, distribution or service provision. This sector is the entry level to the formal economy and has great potential for growth. This is supported by statistical measures which found that in 2002, for example, small and medium enterprises contributed approximately 30.2% to the Gross Domestic Product (Ntsika, 2002). More recently, South African SMEs have contributed between 52-57% of Gross Domestic Product (GDP) and 61% of employment (Abor & Quartey, 2010: 218).

This study concurs with that of Cant and Lightelm (2003:5) who suggest that the SME sector needs enhanced support in countries where governments are less competent.

2.2.2 Significance of SMEs

According to International Finance Corporation (2011:6), small businesses are powerful economic drivers in the developing world as they can make up a share of employment and Gross Domestic Product (GDP). SMEs exist globally and are vital for economic growth. Cant and Lightelm (2003:1) note that SMEs are of paramount importance to economies, especially

in developing countries and also those countries that have challenges in employment and income distribution. Groenewald *et al.* (2006:14) provide further details as to why SMEs are important, including the following:

- They create employment and provide income for people, minimizing poverty as low-income workers are employed.
- They increase productivity.
- They provide entrepreneurs with the means to showcase innovation, playing an important role in technical and other types of innovation.
- They are more likely to use local technologies to satisfy local needs and often use locally recycled resources.

Mudavanhu, Bindu, Chigusiwa and Muchabaiwa (2011:82) citing UNDP (2000) assert that SMEs have taken the spotlight in the social and economic development of many nations. According to Nieman (2006:12), SMEs provide employment opportunities for entrepreneurs while at the same time the average capital cost of a job created is lower than in large firms. Small businesses tend to adapt more easily to changes and trends than bigger firms. According to Herrington and Kew (2013:56) it is noteworthy that Western Cape SMEs contribute a remarkable 14% contribution towards the Republic's GDP. In dealing with the aforementioned, SMEs opt for outsourcing or subcontracting as a strategy instead of applying project management principles. For instance, Cant and Lightelm (2003:5) assert that there are instances where economies of scale could be achieved given the increase in project management and subcontracting. Nonetheless, challenges remain.

2.2.3 Factors affecting SMEs

Despite the significance of SMEs to host communities, challenges facing SMEs remain. The Global Entrepreneurship Monitor (GEM) Reports (cited in Mahembe, 2011:7) found that one of the outstanding challenges for South African SMEs is poor management skills which result from lack of training and education. It is estimated that in South Africa, 91% of formal businesses are SMEs with growth inhibited by a variety of factors:

- lack of access to suitable technology;
- limited access to international markets;
- existence of laws, regulations and rules that impede the development of the sector;
- weak institutional capacity; and a
- lack of management skills and training.

Furthermore, Kongolo (2010:2288) contends with the foregoing premise by elucidating that that the main challenges affecting SMEs in South Africa revolved around lack of

management skills, lack of finance, lack of appropriate technology and lack of interest. Hence it is imperative for researchers to identify sources of weakness within SMEs in a bid to improve the sector (Jones, 2007). Nguwi suggests that SMEs need to develop and implement proper Human Resource (HR) policies and procedures to avoid needless business failure (2013:7).

Notwithstanding these business challenges, there are various success factors that can be implemented in SMEs. However, in considering these success factors it is vital to remember that SMEs are characterised by simplified planning and control systems though researchers recommend that SMEs need to implement a simplified approach towards the management of projects as well. Management practices in most SMEs leave a lot to be desired. Most SMEs have poor management practices. SMEs cannot expect to be viable if they do not address the basic management principles that form the foundation of a successful business, especially important given the significance of SMEs to their host communities.

2.3 Project management in perspective

The term *project management* may carry a different connotation among scholars. Therefore, in this section, project management is put into perspective as to how it is defined for this research. It is important to define project management according to PMI (2008:6) as "the application of knowledge, skills, tools and techniques to project activities to meet the project requirements". Kerzner (2013:4) defines *project management* as an art of planning, organising, controlling of company resources and the motivation of stakeholders involved so as to achieve the specific goals and objectives of the project.

The discipline of *project management* has extended its focus from the study of a single project to a focus on the entire manner a company or organisation uses projects to achieve its goals (Drouin & Besner, 2012:175). Project management is believed to have existed as early as the Egyptian pyramids and the building of the Great Wall of China (Ledwith & Murphy, 2007:155; Oosthuizen & Venter, 2011:14). Oosthuizen and Venter (2011:4) define a *project* as "a complex, temporary and non-routine venture that is undertaken to create a unique product or service". Pemsel and Wiewiora (2013:31) are of the view that projects are temporary and are designed to provide benefits for a permanent operating organisation. According to Oosthuizen and Venter (2011:16), a relationship exists between project management and general management. Management disciplines can co-exist in the same organisation but only proper project management can successfully deliver on objectives. There is little doubt that in most cases the application of project management principles ensures that the strategy of a company is successfully implemented (Oosthuizen & Venter, 2011:17).

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According to Meredith and Mantel (2012:1), past decades have been marked by a rapid usage of project management as a strategy by which organisations achieve their objectives. Sdrolias *et al.* (2005:45) assert that as organisations and enterprises refer most of their activities as projects, project management has become a field that is being used to achieve business goals. Project management provides an organisation with powerful tools that improve the ability to plan, execute, control and deliver activities, as well as the manner in which and the organisation utilises its people and resources. Given the foregoing, the aim of this study is to determine to what extent South African SMEs use project management tools when executing their projects.

Kwak, Anbari and Carayarnis (2003:1) state that during the 1950s, the project management principles were employed by the Navy in their Polaris project. Consequently, the Department of Defence, NASA and other engineering and construction companies made use of project management principles and tools as a means to manage their projects during the 1960s and 70s. The manufacturing and software development divisions adopted and implemented refined project management practices in the 1980s. By the 1990s most industries and organisations had widely received project management theories as a new approach in managing their projects (Kwak, Anbari & Carayarnis, 2003:1). As a direct result of this, scholars have escalated interest in the discipline of project management; hence, the establishment of project management governing bodies such as PMKB and PMBoK.

It is imperative to explore how project management principles are beneficial to SMEs regardless of the size of the organisation. Hence, the aim of this study is to determine the extent to which SMEs utilise project management principles when managing their projects. Although project management has been practised for quite a number of years, organisations have only recently begun applying methodical project management tools and techniques for multifaceted projects.

2.3.2 Project constraints

Project resources are always limited. Every project is unique and therefore it is important to identify project constraints before serious damages take place. Young (2016:66) defines project constraints as limiting factors that hinder the project process and ultimately the expected outcomes. Furthermore, projects can be classified into different categories such as; financial, time, scope, quality and environmental constraints.
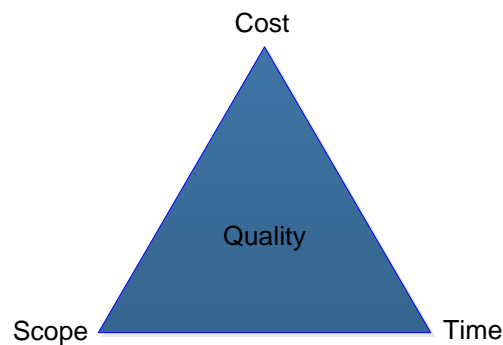
Figure 2.1 Project constraints

According to Fig 2.1 project management is designed to address and manage company resources within a specified time, within cost and delivering quality deliverables. Important to note is that each and every project has a unique deliverable (Kerzner, 2013:5).

2.3.1 Project management knowledge base

The purpose of this section is to provide a general overview of project management bodies which include the project management knowledge base.

There are various project management associations and institutions created across the globe to promote the project management profession. Burke (2010:22) is of the opinion that a body of knowledge (BoK) has been generated concerning project management tools, skills and techniques. Project management associations have been created by those in the project management profession over recent decades. Simultaneously, project management associations have incorporated processes into the Bodies of Knowledge (BoK) which in turn have described competencies and certified competent project managers. Various BoKs have the same theme: that project management is an integrative process which places the iron triangle of time, cost and output at its core Weaver (2007:2). The following various project management bodies exist presently:

- Association of Project Managers (UK): APM's BoK
- Project Management Institute (USA): PMBoK
- International Association of Project Managers: IPMA's BoK
- South African Unit Standards
- ISO 10006 'Guideline to Quality in Project Management': to support clients in evaluating the efficiency of the project management system
- The AIPM's Competency Standards to Project Management (Australia)

The BoK's purpose is to spot and explain the best practices relevant to the majority of projects. The BoK's intention is to provide lingo in the line of work of project management at local and international levels. The PMBoK describes project management under nine knowledge areas (Burke, 2010:22).

2.3.2 Project management knowledge areas

Many would agree that companies engaging in projects need to be aware of the discipline itself in terms of understanding the guidelines and regulations thereof. The Project Management Body of Knowledge (PMBoK) has procedures and knowledge areas adopted as the best practices for the project management profession. PMBOK has five process groups and ten knowledge areas. The processes overlap and interact throughout a project and these processes are initiating, planning, executing, monitoring and controlling and closing. Processes can be best described in terms of inputs, tools and techniques, outputs. In terms of knowledge areas, there are processes aligned to each of them (Haughey, online: 2013).

The knowledge areas that can form the basis for project management include the following: project integration; project scope management; project time management; project cost management; project quality management; project human resources management; project risk management; project communications management; project procurement management; and project stakeholder management.

2.3.2.1 Project integration

Project integration is made up of processes that are essential to ensure that various elements of the project are accurately matched. In a bid for a project to become successful, integration must take place. For example, Earned Value Management (EVM) is a method for incorporating various procedures and for assessing performance of the project from beginning to end (PMI, 2000:41).

2.3.2.2 Project scope management

PMI (2000:51) defines *project scope management* as, "work that must be done to deliver a product with the specified features and functions". Furthermore, project scope management constitutes the processes vital to make certain that the project includes the work needed to successfully complete a project. Scope management incorporates several processes: initiation, scope planning, scope definition and scope change control. Initiation is about authorization of the project, while scope planning involves developing a written scope statement to serve as the foundation for project assessment in future. Scope definition is about segmenting the major deliverables into lesser mechanisms which can be managed.

Scope verification is about formalizing the recognition of the project scope. Scope change control entails monitoring the changes to the scope (PMI, 2000:51).

2.3.2.3 Project time management

Project time management is comprised of processes that are needed to ensure that projects are completed on time. The major processes include activity definition, activity sequencing, activity duration, schedule development and schedule control. Activity definition entails the identification of activities that must be performed to yield various project deliverables. Activity sequencing is about identifying and documenting activities. Activity duration estimation is about approximating the number of work periods needed to complete individual activities. Schedule control entails making deviations to the project schedule (PMI, 2000:65).

2.3.2.4 Project cost management

Project cost management is about completing a project within a specified budget. Resource planning defines the resources and quantities necessary to accomplish project activities. Cost estimation advances estimates of the costs of the resources required to complete project activities. Cost budgeting involves overall cost estimates for allocation to individual work activities. Cost control, involving changes to the project budget, must be carefully controlled. Project cost management considers the information requirements of the project stakeholders because stakeholders may quantify project costs differently. The techniques for project cost management include return on investment, discounted cash flow and payback analysis (PMI, 2000:83).

2.3.2.5 Project quality management

According to Weaver (2007:15), project quality management emphasises achievement of customer satisfaction by providing the right goods and services of the quality necessary for the intended purpose. According to Crawford (2005:121), the world today is crowded by markets that cannot afford to waste the resources; too many adopt a trial-and-error approach and deliver poor quality products or services. In a bid for SMEs or any organisation for that matter to function and compete effectively, the message of quality must be heeded. But as it is common knowledge that SMEs are resistant to the introduction of processes and procedures, this worsens the problems facing SMEs in the endeavour to introduce quality systems like ISO 9000 (Crawford, 2005:133).

Quality is about ensuring that the needs of the client or customer to the project are satisfied. According to PMI (2000:94), quality also includes "all activities of the overall management function that determine the quality policy, objectives and responsibilities and implements them by means such as quality planning, quality assurance, quality control and quality improvement within the quality system". Project quality management processes consist of

quality planning, quality assurance and quality control. Quality planning is about identifying quality standards that are pertinent to the project and defining how they can be satisfied. In terms of quality assurance, project performance has to be evaluated on a regular basis. Quality control involves checking specific project results to determine if they are in line with appropriate quality standards (PMI, 2000:94).

Total Quality Management (TQM) can be of assistance to SMEs to successfully achieve the transition from development stage to maturity because its execution produces a stronger focus on customer needs and expectations through more effective and efficient business processes and the implementation of skills to deliver low-cost, high quality products and services (Price & Chen, 1993). Crawford (2005:32) stresses that SMEs undergo pressure to register with a standard quality management system such as ISO 9000. Therefore, meeting the required standards can be an obstacle for a small company. Motivation by management is required to appreciate, achieve and implement the necessary measures for meeting the required criteria.

2.3.2.6 Project communication management

Communication is an essential skill that should not be overlooked as it is vital for project success. There is no way communication should be ignored, though this happens with unfortunate frequency. Communication is fundamental and, when ignored, works detrimentally against successful project deliverables.

PMI (2008) defines *project communication management* as "the process required to ensure timely and appropriate generation, collection, dissemination, storage and ultimately disposition of project information. It provides critical links among people, ideas and information that are necessary for success". According to Burke (2010:291) in terms of project communication, the key is personnel in the development and maintenance of all communication links in and outside the company. It is vital to remember that communication is effective when it involves all stakeholders. It is through effective communication that the project manager develops interpersonal relationships with the project team, manages conflicts, negotiates with suppliers as well as chairs meetings and prepares presentations. When communication is ineffective, mistakes and problems arise and become costly for the firm to rectify. Effective project communication management, on the other hand, leads to productivity, efficiency and customer satisfaction.

The following are mediums for healthy project communication:
- email, fax, memos, reports;
- video conferences;

- telephone; and
- meetings.

2.3.2.7 Project risk management

According to Verbano and Venturini (2013:194) project risk management has been less studied as an area that focuses on innovative projects. P*roject risk management* is a process that has been integrated into a project's life cycle and it focuses on the definition of objectives, identification of uncertainty sources, analysis of these uncertainties and the formulation of managerial responses to develop an acceptable balance between risks and opportunities (Verbano & Venturini, 2013:189). It is vital for SMEs to manage risks so as to ensure there is survival in the market.

2.3.2.8 Project stakeholder management

- A *project stakeholder* according to Steyn (2016:13-14) is any person or organisation that is part of the project team or has consigned interest in the project. Furthermore, Burke (2010:55) and Oosthuizen and Venter (2011:) define a project stakeholder as any group or individual both internal and external to the project who might have an effect on the project's outcome and whom the project manager relies on for the accomplishment of the project. It can also be anyone whose interests are impacted either negatively or positively by the project that is being executed.

  There are so many parties that are involved in projects. Project stakeholders are categorised into the following;

- Organisational stakeholders
- senior management improvise requirements and evaluate the outcome as they are the decision makers.
- functional managers aid in providing human resource support by releasing some of the staff to embark on a project.
- a project manager needs to be careful about the information that he or she shares.
- the project team are personnel with different interpersonal skills who invest their time and effort to ensure the success of the project.
- employee trade unions and banks must be satisfied as they have high power and less interests in the projects.
- an owner creates employment by ensuring that stakeholders such as the project team and the project manager stay employed.

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- a project sponsor can be anyone who finances the project and/or the party that deals with the disbursement of the project.

  Market stakeholders
- sub-contractors ensure that the needs of the clients are attended to through the project
- end-users are beneficiaries of a project. They are the ones whom the project intends to serve.
- colleagues provide moral support
- suppliers have high interest in the project and as a strategy, they should be kept interested

Project management office (PMO) according to PMI (2004) is 'an organisational body responsible for centralised and coordinated management of projects under its realm, provides project management support functions and ensures direct management of a project'. A PMO can be regarded as an organisational unit which facilitates coordination of knowledge and other resources between the Project-Based Organisation (PBO) which in this case is represented by the SMEs and its projects. A PBO is an organisation in which the majority of services carried out are projects for either internal or external clients (Pemsel & Wiewiora, 2013:31).

2.4 PMBoK Guide five process groups

As a project becomes increasingly complex, it becomes imperative to adopt a sound project management methodology. According to Oosthuizen and Venter (2011:17), a project management methodology is a system of interrelated phases, procedures, activities and tasks that define the project process from start to end.

The PMI has identified five process groups: initiating, planning, executing, monitoring and controlling, and finally, closing. As project management is accomplished through the appropriate application of five process groups, these are briefly described below as per PMBoK standards.

2.4.1 Initiating

These are the processes that assist in defining a complete project or a phase that is about to begin. This process ensures that authority to proceed with a project is granted. This process ensures that the projects to be undertaken are aligned with the organisation's strategy.

2.4.2 Planning

The definition of objectives and scope of work to be accomplished are generated through this process. The focus is on all work that revolves around planning and scheduling tasks.

2.4.3 Executing

These processes are done as the project tasks are carried out. This is a key process because this is where the main activity takes place. These are also called the 'delivery' processes. The inclusion of people and other resources is pivotal in these processes.

2.4.4 Monitoring and controlling

These processes ensure the ability to track work that is being done and to review and report on this work. These processes ensure that everything is in accordance with the project management plan.

2.4.5 Closing

These processes allow the finalisation of all tasks in other process groups as the project comes to a close.

It is of great importance that process groups should not be confused with the project life cycle as the two are different. PMI (2008:41) distinguishes process groups from the project life cycle by stating that the "process groups are not project phases. Where large or complex projects may be separated into distant phases or sub-projects such as feasibility study, concept development, design, prototype, build, test, etc. all of the Process Group processes would normally be repeated for each phase or subproject".

The section that follows discusses the project life cycle.

2.5 Project life cycle

The below Figure 2.2 illustrates the project management life cycle: the first phase is comprised of defining what needs to be done; the second phase is planning where the goals and objectives are contextualized and broken down into meaningful tasks; the third stage is the actual execution where the physical aspect of the project may be seen; and the fourth and final stage is comprised of project closure where everything is finalised and the team discusses lessons learned. According to Burke (2010:67), project management life cycle constitutes of the following stages: initiation, planning, execution and closing.

Initiating
1. Definition of project scope
2. High-level budgets
3. Indicative time-frame
4. Project organisation
5. Establish project charter

Planning
1. Development of the project management plan
2. Detailed schedules
3. Detailed budgets
4. Resourcing
5. Risk analysis
6. Quality definition
7. Communication planning

Executing
1. Change management
2. Quality control
3. Project reporting
4. Delivery of outcomes and outputs
5. Contract management
6. Team management
7. Stakeholder management

Closing
1. Financial closure
2. Final project reporting
3. Final handover to customer
4. Lessons learned
5. Release of resources

Figure 2.2: Project life cycle (source: Project Management in Practice)

Project management as a challenging discipline has many responsibilities which are complex in nature. Fortunate enough, there are tools that are available to aid with the execution of these tasks. Project management tools must be best suited to the management style of the organization (Maserang, 2002: online). Project management needs are addressed by a variety of tools and each stage of the project life cycle has tools that are utilized.

2.5.1 Definition and initiation stage

According to Larson and Gray (2011:7), in this initiating stage, the project team is established to assist in carrying out the project initiation activities. The project initiation plans have to be instituted so as to define the activities required for establishing a team and working towards defining goals and scope of the project (Maserang, online:2002).

Goals and objectives help to understand why a project is being undertaken and how it can be achieved. Statement of Work as a project technique is developed for the client. It gives an outline of work that will be carried out and clearly describes what the project will provide. The SOW is beneficial to ensure that the contractor, client and other project team members clearly understand the proposed project size, duration and outcomes.

The formation of management procedures in a bid to develop team communication and reporting processes, job assignments, project modification system and how the subsidy and billing procedure will be carried out forms part of the initiation stage. Management

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procedures as project techniques are established in a bid to ensure that there is effective team communication and reporting procedures.

2.5.2 Planning stage

Planning refers to the process of generating a time framework for the project which later emerges as a schedule when the start and finish dates have been determined (Burke, 2010:164). Tryon (2008:3) claim that project planning focuses on the work breakdown structure (WBS) which consists of defining the most efficient order to perform the work. Larson and Gray (2011:7) believe that in the planning stage, effort levels increase as plans are developed to determine what the project will entail, when it will be scheduled, who will benefit and what quality level should be maintained.

Planning also involves monitoring and scheduling. The project progress is monitored against the baseline project plan with the aid of Gantt and PERT charts. Gantt charts, according to Burke (2010:164), are the most widely used planning and control documents, originally designed by Henry Gantt in the 1910s as he used them as a visual aid for planning and controlling his shipbuilding projects.

2.5.3 Execution stage

PMI (2000:30) asserts that this execution stage consists of coordinating people and resources to carry out the plan. It is at this stage that the baseline plan as a technique is executed. Baseline project plan has to be set and is important in that it provides estimates of project tasks and resource requests and is used to monitor the execution phase. It is the responsibility of the project manager to initiate the execution of project activities, acquire and assign resources, orient and train new team members, keep the project on schedule and assure the quality of project deliverables.

2.5.4 Closure stage

This closure stage comprises the formal acceptance of the project (PMI, 2000:30) as well as taking note of all project documentation and records that must be finalised so that the final review of the project can be conducted. Maserang (online: 2002) argues project closure is necessary to determine strengths and weaknesses of project deliverables and processes for creating them. Furthermore, the customer contract is closed with all contractual terms met.

2.6 Relationship of Project Management with other disciplines

It is of no doubt that there is a relationship between general management and project management. According to PMI (2000:9); Tryon (2008:1) general management includes: planning, organising, staffing, executing and controlling the operations of an on-going

enterprise. Tryon (2008:3) however further states that in modern project management, these processes are used to describe a manager's relationship to a project. Adding to the above, it also includes other supporting disciplines such as; law, strategic planning, logistics and Human Resources Management. Therefore the PMBOK enhances general management in many aspects such as organisational behaviour, financial forecasting and planning techniques.

Application areas are groups of projects that have mutual components that are substantial in these projects but not needed in all projects. Application areas are however defined in terms of:

- Functional departments and supporting disciplines such as legal, production and inventory management and marketing only to mention a few.
- Technical elements such as software development, pharmaceuticals, water and sanitation engineering.
- Management specialisations such as Government contracting, community development or new product development.
- Industry groups such as automotive, chemicals, agriculture only to mention a few (PMI, 2000:9).

There are some areas of project management that overlay with other management disciplines. Under general management there is planning, organising, staffing, executing and controlling operations in the organisation (Haughey, online: 2013).

2.7 Project management principles

Project management principles refer to the generally accepted guidelines of project management, tools and techniques. A successful project is more readily achieved through the application of sound principles that give guidance for the management of projects. Ntlokombini (2010:16) notes that project management principles are often cultured from experience and have universal validity for all projects. The following are project management principles as authored by Chapman (2001).

2.7.1 Figure out the business environment

The projects selected must be good for the business and the value of the projects must as well be understood. SMEs must be able to understand the area of responsibility that they are in and then mind their own business.

2.7.2 Understand customer requirements

Customer requirements are essential. They must be documented and kept under strict control. Equally important is the fact that the customer's agreement must be in writing to ensure that no requirement is missed. Burke (2010:41) cites that the need or opportunity for the product or service has to be established. There has to be a relationship with the customer to ensure that you understand the customer's organization and thereby creating a strong relationship. Documenting the customer's requirements well is a success factor in the development of projects. However, SMEs often lack the capacity to control and measure this aspect of project management given the fact that many SMEs are not project-orientated and are frequently managed by people lacking project management expertise.

2.7.3 Prepare a reasonable plan

Preparation of a project plan that constitutes the scope, schedule, cost and approach for a reasonable project is vital. There must be responsible task owners in the development of these plans and estimates. Carefully itemizing and delineating work through the engagement of a specific work breakdown structure provides thoroughness and minimises unanticipated work. However, in the case of SMEs, it seems that projects are often executed very differently from experienced, project orientated companies.

2.7.4 Build a good team

The best thing is to get the right people on board who have clearly defined tasks, with the proper tools and training, situated in a dynamic environment.

2.7.5 Track project status

Reviews must be conducted frequently to ensure that progress is maintained.

2.7.6 Use baseline control

Baseline controls must be established using cost and schedule baseline tracking.

2.7.7 Write important stuff

Documentation is essential. It is important to document everything: requirements, plans, procedures and evolving designs. Without documents, it is virtually impossible to have baseline controls and reliable communications.

2.7.8 If it has not been tested, it does not work

Testing must be taken seriously because it helps with understanding and verifying the requirements.

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2.7.9 Ensure customer satisfaction

Customer needs and requirements must be kept intact from project initiation to project closure. Project failure is usually attributed to undetected changes in customer requirements; therefore, it is strongly recommended that customer expectations be adequately addressed throughout the duration of the project phases.

2.8 The importance of project management for small and medium sized enterprises

This section explores project management success factors and the importance of project management for SMEs.

2.8.1 Project management success factors

Generally, project management success factors ensure favourable outcomes. According to Kerzner (2013:7) these indicators include the following: completion of work within budget, the satisfaction of the project schedule, adequate quality standards, minimum or agreed scope changes acceptance by the customer, completion without affecting the corporate culture or the flow of the organisation and meeting the project goal. The table below highlights success factors and their explanation as adapted from Attarzadeh and Ow (2008:235).

Table 2.3: Project management success factors

Factor	Explanation
Acquire the best people	Get the most skilled, experienced and best qualified individuals: identify the right team members
Actively set priorities	Choose the right leader and strategies
Project focus	Focus on achieving broad goals
Planning	Engage in detailed and systematic planning
Sense of urgency	Holding regular meetings and reminders are essential
Fight to do things right	Do it right the first time. Demonstrate why it is necessary
Project sponsors and stakeholders must be active participants	Most project sponsors and stakeholders rightfully demand the authority to approve project deliverables. They must help to define the deliverables and keep the project going
Matched by equivalent authority	Acquire and coordinate resources

The above table indicates project management success factors. On the left side, the table states the factors and the on the right side the factors are explained.

2.8.1.1 Acquire the best people

Under normal circumstances, every organisation, big or small, ought to employ skilful employees. In an event where SMEs deploy project management, this would ensure that a business will get the most skilled, experienced and best qualified individuals and identify the right team members. This would then assist in the successful completion of projects.

2.8.1.2 Actively set priorities

The essence of project management is to first establish the objective and goals of the project, as this also establishes project priorities. Given the application of project management, SMEs set clear define goals and objectives. Consequently, this would assist SMEs with choosing the right leader and strategies.

2.8.1.3 Project focus

Predetermined priorities aid in steering towards successful completion as they guide the project. This further hones project focus. Although scope changes are inevitable, they must be mutually agreed upon by the project manage and the customer.

2.8.1.4 Focus on achieving broad goals

The project focus drives the project forward. Achieving project goals and engaging in systematic planning become vital for project completion. It seems that if SMEs were to adopt project management principles, they would grow not only in revenue but in recognition and awareness. Given the application of success factors of project management by SMEs, these firms are expected to experience certain benefits.

Belassi and Tukel (1996:145) also note five common success factors, including the following: top management support; client consultation; preliminary estimates; availability of resources; and project manager performance. Notwithstanding the success factors, there are opposite factors that hinder project completion, potentially obstructing project closure and resulting in project failure:

- inadequate basis for project;
- wrong person as project manager;
- top management unsupportive;
- inadequately defined tasks;
- lack of project management techniques;
- management techniques misused;
- lack of commitment; and
- project close down not planned (Munns & Bjeirmi, 1996:82).

In addition to the above, other reasons for the failure of projects can be attributed to the following factors; the absence of senior management support and commitment this is due to the fact that they are low interest and they might be a lot of projects that they need to oversee. Clients' non-involvement throughout the project may hinder the end product of the project.

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Given the success and failure factors of project management, SMEs stand a great chance of benefiting from project management.

2.8.2 The importance and benefits of project management

The major benefit of project management revolves around customer satisfaction. Customer satisfaction is what every organisation ought to strive for. A satisfied customer is more likely to have continued connection with the firm and bring more turnover to the firm. For this purpose, regular meetings are expected to be conducted with customers to ensure the project is in accordance with customer goals and expectations. Below are other factors that are of paramount importance in project management.

2.8.2.1 Fast-tracking as a benefit of project management

Project management encompasses estimating and fast-tracking. This forms the basis of the project plan and assists with continuous oversight and management. When a project team fast-tracks, the product is brought to market quicker than anticipated, often faster than the competition.

2.8.2.2 Project reporting

The reporting process is quicker and transparent with project management. For project reporting, the Work Breakdown Structure (WBS) and the Organisational Breakdown Structure (OBS) collectively form elements of the reporting requirements. There is timely response when it comes to project performance as this is vital for project control. Project reporting is therefore essential for SMEs as it breaks downs the tasks at hand thereby breaking the projects into small, manageable tasks.

2.8.2.3 Globalisation

Due to the ever-increasing market, it is of no doubt that the world is fast embracing project management as it is the most growing form of management. This puts pressure on domestic firms to surpass their counterparts.

2.8.2.4 Other benefits

It is important to note that project management benefits project stakeholders as well. For instance the project manager benefits because at the end of the project, he or she will have improved career prospects and created a good impression and ultimately built a good reputation. Furthermore, more opportunities are open for project managers such as the fact that get exposed to a variety of projects. As for a contractor, he or she will enjoy the benefit of an expansion of the market share and prospective business ventures. The project team will attain recognition and thereby increasing chances of being called for future projects (Steyn, 2016)

Table 2.4 below shows the present benefits of project management according to Kerzner (2013: **online**)

Table 2.4: Benefits of project management (source: Project Management: A Systems Approach to Planning, Scheduling, and Controlling

• Project management allows us the accomplishment of more work in less time, with fewer people.
• Profitability will increase.
• Project management will provide better control of scope changes.
• Project management makes the organisation more efficient and effective through better organisational behaviour principles.
• Project management allows work to be conducted more closely with customers.
• Project management provides a means for solving problems.
• All projects will benefit from project management.
• Project management increases quality.
• Project management reduces power struggles.
• Project management allows people to make good company decisions.
• Project management delivers solutions.
• Project management will increase business.

According to table 2.4, project management is about managing limited resources and this includes financial and human resources among others. Time and cost constraints will always be present in all projects depending on the uniqueness of each project. Project management enables the project team to accomplish project goals with limited resources.

Profitability is an aim for any business venture. Project management ensures that a business grows and it is financially sound. Most SMEs strive to have a higher return on investment to remain competitive and efficient in the business world.

Project management solves the problem of scope changes by reducing scope creep. Steyn (2016:72) asserts that there are many strategies that project managers can use in order to reduce scope creep and these may include the following; there must be a properly-planned scope statement that includes all relevant stakeholders involved and their inputs. The involvement of active stakeholders will reduce further complications. It is also important to note that there are certain instances whereby the perfect decision is to propose a new project to address the additional needs. A change management system can be formalised to request

for changes and to expose the repercussions that may arise. An effective change management system results in efficiency and effectiveness of an enterprise.

There is improvement when it comes to quality when project management is utilised. This is because quality planning to identify appropriate standards might have been carried out. When quality control and assurance are performed effectively the quality of the outcome always exceeds the expectations of the customer.

Due to the involvement of the project team, it is important to note that solutions are made readily available.

Additionally Kerzner (2013:3) points out the following potential benefits of project management:

- Identifying functional responsibilities to ensure that all activities are accounted for.
- Identifying the limits for scheduling.
- Reducing the need continuous reporting.
- Identifying problems early so that corrective action may take place.
- Identifying the approach for trade-off analysis.
- Estimating improvement for future planning.
- Knowledge of when objectives can be exceeded.

Further advantages of project management are pointed out as:

- Improved customer relations
- Higher profit margins
- High worker morale
- Shorter development times
- Improved productivity
- Higher quality and increased reliability
- Better control of human and financial resources (Schwalbe, 2011:4)

Notwithstanding the success factors and the benefits of project management, it seems that SMEs utilising project management principles stand a great chance of meeting customer expectations.

2.9 Environmental factors influencing the application of project management principles

It also important to note that factors that influence the proper application of project management principles include the following:

2.9.1 Standards and regulations

The International Organisation for Standardisation (ISO) differentiates standards and regulations as follows: a *standard* is "a document which is approved by a recognised body that provides for common and repeated use, rules, guidelines or characteristics for products, processes or services with which compliance is not mandatory" whereas a *regulation* is a "document which lays down product, process or service characteristics including the applicable administrative provisions with which compliance is mandatory" (PMI, 2000:26).

2.9.2 Internationalisation

Generally projects may span across global boundaries. Besides the traditional constraints such as scope, time, cost and quality, it is important that the project management team consider the effect of time zone differences, national and regional holidays and political differences (PMI, 2000:27).

2.9.3 Cultural Influences

Culture is the "totality of socially transmitted behaviour patterns, arts, beliefs, institutions and all other products of human work and thought". Projects need to operate within a context of one or more norms. This area of influence includes political, economic, demographic, educational, ethnic, ethical, and religious and other areas of practice that affect the way that people and organisations interact (PMI, 2000:27). For instance, a project team comprised of people from different cultures could have either a positive of negative impact on the project at hand. Moreover, team dynamics may either contribute to conflict or potentially enhance the goals of the project given the unique contributions of various cultures and work ethics and styles.

2.9.4. Socio-economic sustainability

According to PMI (2000:27), all projects are planned and executed in a social, economic and environmental context and have both positive and negative impacts. Organisations are accountable for impacts resulting from a project and also the effects of a project on people, the economy and the environment (PMI, 2000:27). Apart from the environmental factors, there may be other factors, natural factors often referred to 'unforeseen circumstances' such as earthquakes, floods and civil unrest that might take place (PMI, 2000:27). It is also

necessary to note the benefits of project management principles and project success factors in order to determine the benefits derived from project management principles by SMEs.

2.10 The utilisation of project management by SMEs

Turner and Ledwith (2016:1) are of the motion that project management is essential for SMEs. For SMEs, there is usually a lack of established project management methods and absence of equipped and skilled project leaders. Moreover, present project management principles are considered as complicated by SMEs. SMEs pursue projects to deliver commissioned products to customers, innovation and growth (Turner *et al.,* 2009, 2010). SMEs have been portrayed as drivers of the economy (Forsman, 2008:606). According to Sudhakar (2008: online), the usage of project management methodologies and techniques across an organisation is necessary to benefit organisational success and profitability.

Project management has been discussed by various researchers in relation to large enterprises. Turner *et al.* (2010:745) have is that there has been little that has been written pertaining to project management in SMEs, hence prompting their study. However, Bakouros and Kelessidis (2000:2) argue that project management concepts are likewise applicable to small as well as very large projects, but formal tools tend to be more suitable for large projects. Belinschi (2014:30) asserts that although there are guidelines and processes used for projects in companies, the application of project management is different in large companies than small and medium sized companies.

While the importance of project management to SMEs should not be doubted, the project management communities do little to provide SMEs with suitable direction for the management of projects (PMI, 2010). Thomas and Mullaly (2008) found that in order for organisations to achieve success when it comes to project management, there needs to be an appropriate fit between project management practices and the parent organisation and the nature of projects undertaken. According to Dinsmore (1999), some companies are recommending project management as a basic approach for devising strategies to tackle daily business.

SMEs face constraints of financial and other resources. Little literature has focused on project management in South African SMEs, as much focus has been on large projects instead. This justified the need for this specific research concerning the extent to which SMEs utilise project management principles. It is a fair assumption that the nature of project management required by SMEs is different from the traditional forms practised by larger firms. This statement is supported by Ghobadian and Gallear (1997), Turner *et al.* (2009: 2012), Andersen, Dysvik and Vaagaasar (2009), and International Project Management

Association (2006). According to Ghobadian *et al.* (1997), Turner *et al.* (2009:2012), Andersen *et al.* (2009) and International Project Management Association (2006) have proclaimed that the nature of project management in SMEs is different from the traditional forms of project management required for large organisations.

Andersen *et al.* (2009) alluded to the fact that the organisational culture of the parent organisation affects the way projects are carried out. However, Ledwith (2004) and Murphy and Ledwith (2007) have argued that SMEs need to follow a formal structure for implementing their project management practices by identifying strategic objectives, success factors and tools and techniques. Turner and Ledwith (2016:17) subsequent to their study, made an allusion that professional institutions like PMI need to recognise that SMEs may need special forms of project management principles that differ from larger organisations. Murphy and Ledwith (2007) outlined that SMME owners have an understanding of the significance of a well-defined project management process though there is dissimilarity between how large and small firms approach projects. Increasing the amount of project work across various sectors and industries has been one of the significant organisational and managerial developments over recent years (Winter & Szczepanek, 2008:95).

Discoveries from the study of Murphy and Ledwith (2007:164) can be summarised in terms of consequences for project management within SMEs, as follows:

- Project success is more prevalent in firms that have full-time distinguishable project managers and that apply project planning techniques.
- Project success is more predominant in firms that consider accomplishment schedules to be important.

It appears that SMEs applying project management principles stand a better chance of benefiting, as opposed to those not engaging in project management. However, the downfall of projects within SMEs is that most SMEs are managed by people who have no background of project management resulting in a high failure rate of SME projects.

2.11 Summary

This chapter presents s review of the relevant literature focusing on whether small and medium enterprises use project management principles to their benefit. This section explored the overview of SMEs and put project management in perspective. Furthermore, this chapter also explored the benefits of project management principles and the success factors of project management. Moreover, the project life cycle was examined to see how SMEs use project life cycle when dealing with project management.

The literature suggests that there are benefits derived from using project management principles. However, SME owners to often fail to reap these benefits due to the fact that small business owner cannot apply the principles of project management. Furthermore, small business owners often lack project management knowledge. Consequently, the small business owner becomes the project manager while carrying other responsibilities as well in instances where the small business is a one man show.

To answer the main research question empirically, the following chapter deals with the research design underpinning this study.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The aforementioned chapter reviewed existing literature on the extent to which SMEs apply project management principles. This chapter focuses on research methodology. *Research methodology* is a scientific skill of inquiry as an experimental design to collect and analyse data so that the researcher can answer the research question (Greenfield, 2002:3). This statement is supported by De Vaus (2003:4) who explained that the main purpose of research methodology is to explain the process of research and to investigate the research problem. This chapter explains the research design and methods utilised in this present study, including population, sampling, and data collection techniques.

3.2 Research questions

Based on the problem statement discussed in Chapter One and the review of existing literature in Chapter Two, the main objective of the study was to determine the extent to which SMEs apply project management principles.

The sub-objectives of this study are as follows:

- to investigate the importance of project management principles as necessary factors for achieving success;
- to determine the factors that influence the application of project management principles; and
- to determine to what extent SMEs make use of project management tools and techniques.

3.3 Research design

Research design is a set of guidelines or instructions that specify the methods and procedures for collecting and analysing data (Mouton, 2006:107). In actual fact, Mouton points out that research design could be viewed as a strategic frame to ensure that information collected is appropriate for solving or working on the research problem. Burns and Bush (2005:104) listed three types of research designs: exploratory, descriptive and explanatory. The researcher utilised both exploratory and descriptive research design in this present study.

3.3.1 Descriptive research design

According to Burns and Bush (2005:110), *descriptive design* is utilised to answer the following research questions of who, what, where, when and how. In agreement with Burn and Bush (2005:110), the descriptive design enabled the researcher to do the following:

firstly, conduct a survey among staff from various selected building construction companies, event companies and information technology companies located in Cape Town, South Africa; secondly, to describe the extent of managing small and medium enterprises using project management principles; thirdly, to compile and describe the demographics of the respondents; and fourthly, to identify factors affecting the application of project management principles.

3.3.2 Exploratory research design

According to Mouton (2010:80), *exploratory research design* helps the researcher gain a better understanding of a given topic. Similar to Mouton (2010:80), exploratory design enabled the researcher to have a better understanding since it involved the used interviews with project managers. Furthermore, Mouton (2010:80) postulated that exploratory design involved serving respondents who have experience and are knowledgeable of the problem investigated in the given study. As with Mouton (2010:80), the researcher conducted interviews with project managers of different selected building construction companies, event companies and information technology located in Cape Town.

3.3.3 Research methodology

According to Welman, Kruger and Mitchell (2005:2), the *research methodology* explains the rationale behind research techniques. Babbie and Mouton (2010:75) share similar views that research methodology clarifies the types of research approach suitable in a study. In line with Babbie and Mouton (2010:75), both quantitative and qualitative research approaches were deemed most suitable for this study. These two approaches are discussed below.

3.3.3.1 Qualitative research methods

Polonsky and Waller (2011:134) point out that *qualitative research method* is concerned with soliciting the thoughts and feeling of the participants, understanding the issue in depth before drawing a conclusion. In fact, it deals mostly with small numbers of participants who provide in-depth information to the researcher. The researcher typically conducts face-to-face interviews as well as unstructured interviews or structured questionnaires. Denscombe (2007:286) shared similar views with those of Polonsky and Waller (2011:134), saying qualitative research is either spoken or written words and sometimes makes use of visual images, interviews, documents and observations. Thomas (2003:1) concurred that qualitative research deals with the description of the characteristics of human beings and events. He also agrees that qualitative researchers do not compare events in terms of measurements of amount.

Qualitative methods was utilised because the literature on the experiences and perceptions of project management principles in the Cape Town Metropolitan area in South Africa is sparse. Furthermore, the researcher utilised qualitative research because, as described by Babbie and Mouton (2009:270), quantitative research is a "process that is conducted in the natural setting of social actors focussing on the process rather than the outcome, the actor's point of view is emphasised". Qualitative research allows participants to dig deeper into detail about knowledge and experiences as they are free to openly articulate their views concerning a topic under discussion. Therefore, interviews were conducted with the owners of the firms in order to understand their experiences and perceptions surrounding project management principles. The interviews aided in determining several points:

- to understand the project management principles, techniques and tools employed in these SMEs' projects;
- to understand the level of project management recognition as a process in SMEs; and
- to understand factors hindering the proper application of project management principles.

Despite the fact that qualitative methods enable the researcher to receive a greater variety or depth of data extracted from the interviewee, there are several limitations. One of the limitations is that the sample size is relative small so occasionally the findings cannot be generalised and the participants may not be a fair representative of the larger population. Moreover, the findings are dependent on the interpretation of the researcher, so sometimes the finding may be prone to bias; interpretations are subjective rather objective. Consequently, to ensure that the findings are representative of the larger population, the researcher also applied quantitative method.

3.3.3.2 Quantitative research method

As explained by Babbie and Mouton (2010:263), *quantitative research methods* enable the researcher to be more interactive and to report the social phenomenon in a more objective way. To accomplish this, the researcher utilised questionnaires containing closed-ended questions, administered to personnel working in project departments.

The researcher utilised a funnel shape design for the six page questionnaires (Appendix B). The first section of the questionnaire was based on demographic information to profile respondents. The second section covered project management as a recognised profession. The third section focused on fundamentals of project management. The fourth section focused on the success factors. And finally, the fifth section focused on project management tools selected from the source of an evaluation of major guidelines in the PMBoK.

The questionnaire was accompanied by an attached cover letter kindly requesting the participation of respondents (Appendix A). Part of the questionnaire was based on the 5-point Likert scale for which respondents had to respond to each statement by choosing the one most agreeable choice – ranging from (1) strongly disagree, to (2) disagree, to (3) neutral, to (4) agree, to (5) strongly agree – which allowed the respondents to be captured through leading statements. The other section of the questionnaire contained a single or multiple-response scale or checklist to give participants the freedom to select one or more alternatives. The Likert scale was chosen because, as explained by Emory and Cooper (1995; cited in Bruwer, 2010:31), it is easy and quick to formulate, and perhaps more importantly, it is more reliable and provides a greater volume of data.

The researcher took four weeks to distribute 223 questionnaires to personnel working in project departments, providing participants plenty of time to read and think before answering the questions. In the fifth week, the researcher began collecting the completed questionnaires; however, not all questionnaires were collected. In the sixth week, the researcher, contacting by phone contacting the respondents who had not completed the questionnaires, facilitated the final respondent completion. In all, the researcher took seven weeks to distribute and collect all 223 questionnaires.

The areas where these participants were located is discussed below. Figure 3.1 is a map of Cape Town showing the location of project management companies – Strand, Brackenfell, Blouberg, Bellville, Goodwood, Southern Suburbs and Muizenberg – areas chosen because of their extensive project development.

Figure 3.1: Map of Cape Town

3.4 Population under study

According to McDaniel and Gates (1998:301) a *population* is the total group from which a researcher obtains information and from which the units of analysis will be selected. Furthermore, Dunn (2010:428) defines *population* as all the members of particular group. This view is supported by Brynard and Hanekom (2006:55), and Flick (2007:85), who define *population* as a group of people chosen to participate in a study. For this specific study, the targeted population was comprised of the following:

- project managers of construction, event, and information technology firms located in the Cape Metropolitan Area; and
- staff employed in project management departments within these construction, event, and information technology companies in the Cape Metropolitan area of South Africa.

These participants were identified through a database, chosen because of their extensive project development experiences.

3.5 Sample frame

According to Bryman (2004:87), it is very difficult, time consuming and expensive to target the entire population of a study. Hence, he recommended that the researcher should utilise a sampling frame. A *sampling frame* is a list of population members from which the sample will be drawn. The sample frame from this study was permanent staff employed in project management departments of construction firms, event firms, and information technology companies located in the Cape Metropolitan Area of South Africa.

3.6 Sampling methods

There are two basic types of sampling: probability and non-probability sampling. The researcher utilised a purposive non-probability sampling technique. Purposive sampling was used for this study because, as explained by Blumberg, Cooper and Schindler (2011:167) and Adler and Clark (2010:123), respondents are selected based on their characteristics or their experiences, attitudes or perceptions to participate in the study.

Therefore, in line with Blumberg *et al.* (2011:167) and Adler and Clark (2010:123), the researcher selected the owners of construction firms, event firms, and information technology firms located in Cape Town. More specifically, the researcher chose permanent staff employed in project management departments of construction firms, event firms and information technology companies, chosen because of their knowledge and experiences of the chosen topic.

3.7 Sampling size

The *sampling size* is a process to select a group of the population based on certain characteristics suitable for the given study. Both quantitative and qualitative sample sizes were selected for the study. All 280 personnel working in the project management company were selected for the quantitative study. Therefore, to achieve the quantitative sample size, the researcher utilised a Raosoft (2009) software sample size to calculator the sample of 280 staffs, and 223 were recommended for the study. The Raosoft (2009) utilised in the study was in line with Faul *et al.* (2009:1149), according to whom, to ensure a sample size is big enough to give a satisfactory result, using 95% statistical power is necessary. Hence, to ensure that the sample size is satisfactory, the population of the respondents was inserted on Raosoft software sample size calculators (280 respondents) and 223 respondents were selected as the correct sample size for this study. Furthermore, although all 20 owners of the project management companies were selected as sample of the qualitative study, only five owners were available for the study.

3.8 Piloting questionnaires

A *pilot study* is described by Welman, Kruger and Mitchell (2012: 148) as a means of administering an instrument to a small number of subjects from the same population with the intention of detecting possible flaws such as unclear instructions, possible wrong wording and grammatical errors, and investigation validity and reliability. The pilot study was conducted for a period of three weeks in April 2015.

To ensure that information on the questionnaire was understood by prospective respondents, the initial draft of the questionnaire was submitted to the statistician at Cape Peninsula University of Technology for suggestions and recommendations. The questionnaires were returned and suggestions duly implemented.

After the feedback from the Statistical Consulting, thirty questionnaires (10% of the 223 questionnaires) were distributed to a building construction company in Wellington. The questionnaires were assessed, and from that, eleven questions were modified.

3.9 Quantitative data collection and analysis

According to Dorsten and Hotchkiss (2005:30), *data collection* is a process of collecting information by humans or machines. A study should utilise a survey to collect quantitative (questionnaires) data because this method is a relatively quick, cheap, efficient and accurate means of accessing information pertaining to a population. Therefore, questionnaires were administered by the researcher to respondents for a period of four weeks. In terms of qualitative methods, data collected by means of interviews were analysed using content analysis, whereas data collected through questionnaires were captured and analysed by means of the Statistical Product and Service Solution.

3.10 Qualitative data collection and analysis

According to Bryman and Burgess (1999:4, cited by Mugobo, 2013:206), *data collection* and *analysis* in a qualitative study are simultaneous processes. Moreover, Miles and Huberman (1994:9 as cited by Mugobo, 2013:207) assert that qualitative data should follow this sequence: firstly, allocating code on the data collected; secondly, identifying the pattern, themes, phrases, sub-group and sequence; thirdly, identifying commonalities and differences; and lastly, elaborating a set of generalisation. There were 20 owner-managers of project companies selected for this study; however, only five owner-managers of project companies were available. The researcher comprehensively analysed the data garnered from these interviews, and data were placed in themes. The commonality and differences of the themes were identified, and the data were objectively analysed and interpreted by the researcher.

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3.11 Collection of secondary data

The researcher collected data from conference papers, government publications, the Internet, journal articles, books, and unpublished Master and PhD theses.

3.12 Reliability and validity

3.12.1 Reliability

Reliability means to rely on, to depend or trust the validity of data of a study (The South African Concise Oxford Dictionary 2002:987). Furthermore, *reliability* is the extent to which obtained scores maybe generalised to different measurement occasions and measurement tests (Welman & Kruger 2001:139)**.** Therefore to ensure that this study is reliable, the questionnaires were submitted to the Statistician in Cape Peninsula University of Technology for suggestions and recommendations. After the feedback from the Statistical Consulting, thirty questionnaires (10% of the 223 questionnaires) were tested within a building construction company in Wellington, a town north of Cape Town. The questionnaires were assessed, and eleven questions were modified. The researcher also measured the validity of the study.

3.12.2 Validity

Validity is defined as "legal and official acceptance of the data" (Oxford Advanced Learners' Dictionary 2010:1648). *Validity* is concerned with the accuracy and truthfulness of scientific findings. According to Glaser and Strauss (1967), Leininger (1991), and Lincoln and Guba (1985), the following concepts have been used in other studies as alternative words to validity: credibility, trustworthiness, truth, value, applicability and consistency.

To ensure that this study was valid, a supervisor and co-supervisor were assigned to supervise the researcher. Both supervisors verified whether the research problems, research questions and data collection methods were derived from the literature. In addition, the Higher Degree Committee at Cape Peninsula University confirmed the validity of the study is valid.

To ensure that the sample population was representative of all the project management companies selected for this study, the researcher ensured that respondents were selected from different types of project management companies.

3.13 Ethical considerations

Saunders *et al.* (2009:183) state that "ethics refer to the appropriateness of your behaviour in relation to the rights of those who become the subject of your work, or are affected by it".

Furthermore, Cooper and Schindler (2001; cited by Herbst & Coldwell, 2004:18) are of the opinion that "Ethics is made up of norms of behaviour that guide moral choices about behaviour and relating with others." Its goal is to ensure that no one is harmed during the research activities. Hair *et al.* (2011:55) share similar sentiments with Cooper and Schindler (2001) that business researchers are faced with ethical considerations and possible dilemmas throughout the research, with potential ethical issues including coercing participation, causing potential physical or psychological harm, not maintaining privacy, and not informing subjects of the nature of the research.

As a prerequisite of the Cape Peninsula University of Technology Research Ethics Committee, permission seeking letters were drafted and sent to the participants in a bid to seek permission to conduct research (Appendix A). Participants were informed of nature of the study in advance, and were not forced or coerced to take part in the research. The participants were assured that the data would be treated with strict confidentiality; anonymity was maintained and personal details of participants were not published. Lastly, the findings were reported and presented with honesty, without misleading others or misrepresenting the facts of the nature.

3.14 Delineation of the study
- The focus of the study was to determine the extent to which SMEs apply project management principles in Cape Metropolitan area of South Africa.
- The researcher utilised purposive non-probability sampling technique.
- The study targeted only employees and project managers employed in project management departments of construction, events, and information technology companies located in the Cape Metropolitan area of South Africa.

3.15 Chapter summary
Chapter Three concludes the methodology section of the research project. It outlined the approach that was selected for this study. It reflected on both quantitative and qualitative research methods, population and sample, validity and reliability of the study, ethical considerations and data analysis. Subsequently, Chapter Four details data analysis, the methods used to analyse the data, research findings and discussion.

CHAPTER FOUR
DATA PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

The foregoing chapter discussed the research methodology utilised in this study. This chapter focuses on data presentation and discussion of the results. According to Brynard and Hanekom (2014:62), "data presentation and analysis is undertaken to determine what can be discarded and what can be saved for the actual research. The data analysis process involves three stages: firstly, filter out irrelevant data; secondly, reduce; thirdly, reduce still further".

Zikmund, Babin, Carr and Griffin (2013:648) agree that data discussion is the making of sense out of mass data. Data presentation and discussion of results in this study are presented in two sections – firstly, the quantitative data was obtained through the questionnaires which were administered to personnel working in project departments; and secondly, qualitative data was obtained through interviews conducted with the owner-managers of the firms in order to understand their experiences and perceptions surrounding project management principles. Both results were analysed and interpreted in relation to the objectives of the study.

4.2 Revisiting the objectives of the study

The research objectives investigated in this study were grouped into a primary research objective and sub-research objectives.

Primary objective

- To determine the extent to which SMEs in the Western Cape apply project management principles.

Sub-research objectives

- To describe the project management principles that are best suited for SMEs;
- To explore the project management tools and techniques used by SMEs; and
- To determine the factors affecting the application of project management principles within SMEs.

4.3 Quantitative data presentation and discussion of results

The quantitative data presentation and discussion of results is placed under the following sub headings:

Section A: Demographic information of permanent personnel working in projects

Section B: Project management principles

Section C: Factors affecting the application of project management principles

Section D: Project management tools and techniques

4.3.1 Section A: Demographic information of permanent personnel working in projects

Table 4.3.1.1: Participants' gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	95	42.6	42.6	42.6
	Male	128	57.4	57.4	100.0
	Total	223	100.0	100.0	

Table 4.3.1.1 above shows the participants' gender. Of the 223 participants who took part in the survey, a slight majority (128) are male (57.4%) while only 95 (42.6%) are females. These results align with Muller and Turner (2007:302), Haupt (2007:44) and Perumal (2012:59), studies. In Haupt's (2007:44) study, the participants were mostly male (83.3%), while fewer were female (16.7%). Such study participation is reinforced by those of Perumal's (2012:59) study who indicated that 700 (52%) male tend to participate in project and 656 (48%) female This would suggest that involvement in projects appears to be male-dominated due to mental toughness and character building which are traditionally factors of male identity. Male domination has perhaps contributed to the findings of the study.

Table 4.3.1.2: Participants' age group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 24	18	8.1	8.1	8.1
	25 – 35	77	34.5	34.7	42.8
	36 – 49	105	47.1	47.3	90.1
	50 plus	22	9.9	9.9	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

Table 4.3.1.2 above shows participants' ages. Of the 223 participants who took part in the survey, the majority (105) (47.3%) were between 36 to 49 years, followed by 77 (34.7%) between 25 to 35 years. Only 18 (8.1%) were under the age of 24 years. The result of this study does not correlate with Haupt (2007:44). According to Haupt's (2007:44) study, the largest section of participants was between 25 and 34 (42.9%).Evidently, the result shows that employees of project companies are relatively old, trending between 34 and 49. As a result, the employees are likely to have experience in project management.

Table 4.3.1.3: Participants' level of education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PhD	1	.4	.4	.4
	Master's	3	1.3	1.3	1.7
	Degree/Honours	13	5.8	5.8	11.7
	Diploma	12	5.4	5.4	43.5
	Higher Certificate	58	26.0	26.0	72.6
	Matric	71	31.8	31.8	98.7
	Below Matric	65	29.1	29.1	100.0
	Total	223	100.0	100.0	

The results in Table 4.3.1.3 show participants' level of education. The majority (71) of participates (31.8%) had Matric. This was followed by 58 (26.0%) participants who obtained Higher Certificates. From the findings, 29 (12.9%) of the participants had a formal higher education qualification. These results reflecting that majority of participants have only matriculated is an indication that most employees have a limited theoretical understanding of project management tools and techniques.

Table 4.3.1.4: Participants' employment period within the firm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 Year	25	11.2	11.2	11.2
	2-4 years	130	58.3	58.3	69.5
	5-7 years	49	22.0	22.0	91.5
	More than 8 years	19	8.5	8.5	100.0
	Total	223	100.0	100.0	

As indicated in Table 4.3.1.4 above, the majority (130) of the participants (58.3%) have been employed by the firm for a period between two to four years. This was followed by 49 (22.0%) participants who had secured employment with the firms between five and seven years, with only 25 (11.2%) participants who had employment with the firms less than a year. This finding is contrary with Moilwa's study (2013:109) in which over 12 (70.59%) of participants' employment periods with the firm was between three and ten years. The fact that a significant proportion of participants' employment periods with the firm is between two to four years is an indication that numerous participants likely lack experience in project management. The number of years that respondents have spent in the firm is vital to put into consideration as they are unfamiliar with the strengths and weaknesses encountered.

Table 4.3.1.5: Participants' operating industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Construction	56	25.1	28.3	28.3
	Events	85	38.1	42.9	71.2
	IT	57	25.6	28.8	100.0
	Total	198	88.8	100.0	
Missing	No response	25	11.2		
Total		223	100.0		

The findings in Table 4.3.1.5 above show the participants operating industry. Out of the 223 participants taking part in the survey, the majority (85) (42.9%) operate in the events industry. This was followed by 57 (28.8%) participants from the information technology industry, and 56 (28.3%) participants from within the construction industry. The finding does not correlate with those of Moilwa (2013:108) who found that most of the participants are in the building and construction field, followed by civil engineering construction contractors. A reason for an increase of participants in the events industry is because the events industry is a multi-gender industry.

Table 4.3.1.6:Total number of employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 20	35	15.7	15.9	15.9
	20-50	62	27.8	28.2	44.1
	50-200	116	52.0	52.7	96.8
	More than 200	7	3.1	3.2	100.0
	Total	220	98.7	100.0	
Missing	No response	3	1.3		
Total		223	100.0		

Table 4.3.1.6 presents the total number of employees involved in a project. Of the 223 participants who took part on the survey, the majority (116) (52.7%) of employees involved in the project were between 50 and 200. This was followed by 62 (28.2%) participants (falling between 20 and 50 number of employees involved in a project), with only 35 (15.9%) (fewer than 20 employees involved in a project). A reason for the increase of participants appears to be that many participants are involved in a project.

Table 4.3.1.7: Related work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	100	44.8	44.8	55.2
	No	123	55.2	55.2	100.0
	Total	223	100.0	100.0	

Table 4.3.1.7 shows related work experience in executed projects. Of the 223 participants in the survey, the majority (123) (55.2%) of participants disagreed that they had related work experience in executing a project, whereas, 100 (44.8%) respondents agreed. The fact that

a significant proportion of the participants do not have work-related experience in executing a project is likely to impact the successful execution of a project by hindering the speed of the project. This result is not in agreement with Haupt's (2007:65) study in which the majority of respondents have been working in projects in different countries in Africa; hence they are aware of their organisation's strengths and weaknesses.

4.3.2 Section B: Project management principles

Table 4.3.2.1: There is appointed project manager/leader for executed projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	2.2	2.2	2.2
	Disagree	18	8.1	8.1	10.3
	Not applicable	41	18.4	18.4	28.7
	Agree	53	23.8	23.8	52.5
	Strongly agree	106	47.5	47.5	100.0
	Total	223	100.0	100.0	

The results in Table 4.3.2.1 show the response of the respondents on the presence of a project manager and/or project leader for every project executed. Results indicate that of the 223 survey participants, 159 (71.3%) participants agreed there is always an appointed project leader, whereas only 23 (10.3%) of the participants disagreed. Although there is an appointed leader for most projects executed, most SMEs cannot expect to be viable if project leaders do not address the basic management principles that best suit the business.

Table 4.3.2.2: Preparation of a project plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	33	14.8	15.1	15.1
	Disagree	48	21.5	22.0	37.2
	Not applicable	42	18.8	19.3	56.4
	Agree	70	31.4	32.1	88.5
	Strongly agree	25	11.2	11.5	100.0
	Total	218	97.8	100.0	
Missing	No response	3	1.3		
	System	2	.9		
	Total	5	2.2		
Total		223	100.0		

According to Table 4.3.2.2, 95 (43.6%) of participants agreed that prior to the execution of a project the management team or an individual prepare a project plan, whereas 81 (37.1%) disagreed. This finding aligns with Moilwa (2013:108) according to whom all the contracted agreed there is a designated person who does the project planning. Preparation of project planning constitutes the scope, schedule and cost of the project. However, in the case of SMEs, it seems that projects are executed differently than at larger project-orientated companies.

Table 4.3.2.3: The overall project cost is normally included in project planning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	27	12.1	12.2	12.2
	Disagree	20	9.0	9.0	21.2
	Not applicable	36	16.1	16.2	37.4
	Agree	81	36.3	36.5	73.9
	Strongly agree	58	26.0	26.1	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

Table 4.3.2.3 shows the respondents' responses on the inclusion of the overall project cost in project planning. As indicated, out of the 223 survey participants, 139 (62.6%) participants agreed that the over project cost is normally included in project planning, while 47 (21.1%) disagreed. Cost budgeting is one of the primary project management principles. Cost budgeting involves overall cost estimates that must be allocated to individual work activities. As it also involves changes to the project budget, cost must be tightly monitored and controlled. The fact that most of the participants agreed that the overall cost project is included in the project planning is an indication that cost planning is taken seriously in project completion.

Table 4.3.2.4: The project team is skilled and knowledgeable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	41	18.4	18.4	18.4
	Disagree	20	9.0	9.0	17.5
	Not applicable	95	42.6	42.6	35.9
	Agree	19	8.5	8.5	78.5
	Strongly agree	48	21.5	21.5	100.0
	Total	223	100.0	100.0	

The results in the Table 4.3.2.4 present the response of the respondents on the skills and knowledge of the project team on the project executed. Of the 223 participants taking part in the survey, 67 (31.0%) participants agreed the project team is skilled and knowledgeable about the project executed, while 61 (27.4%) disagreed. This indicates that the majority of project management teams are skilled and knowledgeable. However, the finding does not align with the Global Entrepreneurship Monitor (GEM) reports cited in Mahembe (2011:7) which found that most outstanding challenges for South African SMEs are poor management skills resulting from lack of training and education.

Table 4.3.2.5: Selection of project team on the basis of experience and skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	45	20.2	20.2	20.2
	Disagree	42	18.8	18.8	39.0
	Not applicable	63	28.3	28.3	81.9
	Agree	31	13.9	13.9	52.9
	Strongly agree	42	18.8	18.8	100.0
	Total	223	100.0	100.0	

Table 4.3.2.5 above shows how the respondents responded on the selection criteria of the project team pertaining to the project to be executed. Out of the 223 survey participants, 87 (39.0%) participants disagreed that the project team is selected on the basis of experience and skills of the project to be executed, while 73 (32.7%) agreed. Under normal circumstances, project teams should be selected on the basis of experience and skill relevant to the project to be executed. If SMEs select the most skilled, experienced and best qualified individuals and the right team members, this greatly assists in the successful completion of a project.

Table 4.3.2.6: The project team is trained if they have no project experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	112	50.2	50.7	12.7
	Not applicable	33	14.8	14.9	27.6
	Agree	28	12.6	12.7	78.3
	Strongly agree	48	21.5	21.7	100.0
	Total	221	99.1	100.0	
Missing	No response	2	.9		
Total		223	100.0		

Results on Table 4.3.2.6 reveal that the project team is not trained if they are lacking in experience on the project. Out of the 223 participants who took part on the survey, 145 (65.6%) participants disagreed the project team is trained if they have no experience on the project and 76 (33.4%) agreed. SMEs cannot expect to be viable if they do not train their employees. This training forms the foundations of a successful business and increases the significance of SMEs to host communities.

Table 4.3.2.7: Work breakdown structure is included in project plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	61	27.4	27.4	15.2
	Disagree	42	18.8	18.8	34.1
	Not applicable	55	24.7	24.7	58.7
	Agree	34	15.2	15.2	86.1
	Strongly agree	31	13.9	13.9	100.0
	Total	223	100.0	100.0	

The results on the above table show the response of respondents on the inclusion of the work breakdown structure in the project plan. Approximately half (103) (46.2%) of the participants disagreed that work break down structure is included in the project plan, and 65 (29.1%) agreed. Work breakdown structure enables the project team to plan their work efficiently. However, the fact that most participants agreed that the work break down structure is not included in the project plan, means there will be inconsistencies with planning and effective project execution. This is in line with Murphy and Ledwith (2007:153-166) who examined the use of project management practices in small high-technology firms and, in identifying what contributes to project success, found that existence of a project manager and thorough project planning significantly contributed to the success of a project.

Table 4.3.2.8: Baseline controls are established

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	49	22.0	22.0	22.0
	Disagree	58	26.0	26.0	48.0
	Not applicable	36	16.1	16.1	64.1
	Agree	54	24.2	24.2	88.3
	Strongly agree	26	11.7	11.7	100.0
	Total	223	100.0	100.0	

Based on the results in Table 4.3.2.8, the respondents established that baseline controls are not established for different spheres of the project. The fact that majority of the participants agreed that baseline controls are not utilised for different spheres of the project, therefore implies project managers would not be clearly aware of project progress (by analysing baseline vs. actual) and forecast for project outcome. Baseline control is very important to SMEs for measuring the schedule, cost, scope and quality product or services.

Table 4.3.2.9: Project executions are evaluated against the project plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	26	11.7	11.7	11.7
	Disagree	39	17.5	17.6	29.3
	Not applicable	61	27.4	27.5	56.8
	Agree	42	18.8	18.9	75.7
	Strongly agree	54	24.2	24.3	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

Table 4.3.2.9 indicates the responses of the participants on the evaluation of project executions against the project plan. Of the 223 participants who took part in the survey, a slight majority (96) (43.1%) agreed that project executions are evaluated against the project plan. Project execution and evaluation against the plan are very important to SMEs in the sense that project management is then able to measure the schedule, cost, scope and quality of the project progress and forecast the project outcome.

Table 4.3.2.10: Projects are completed within schedule

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	94	42.2	42.3	14.0
	Disagree	18	8.1	8.1	22.1
	Not applicable	57	25.6	25.7	47.7
	Agree	31	13.9	14.0	90.1
	Strongly agree	22	9.9	9.9	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

The results on Table 4.3.2.10 show the responses of the respondents on the completion of projects within schedule. Results show that 112 (50.4%) of the participants disagreed that project are completed within schedule, whereas only 88 (39.7%) of participants agreed. This finding does not align with the study of White and Fortune (2002:2) within which 215 (91%) of their respondents agreed that projects were completed. Only 21 (9%) of the project were not completed. According to the researcher, projects not completed within schedule negatively affect both the SMEs and the clients. Delays cause the management of SMEs to incur additional cost as the original budget is no longer enough to serve its intended purpose.

Table 4.3.2.11: Projects are completed within budget

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	80	35.9	35.9	35.9
	Disagree	40	17.9	17.9	53.8
	Not applicable	82	36.8	36.8	90.6
	Agree	8	3.6	3.6	94.2
	Strongly agree	13	5.8	5.8	100.0
	Total	223	100.0	100.0	

From the responses of the respondents, projects are not completed within budget. Out of the 223 participants who took part in the survey, 120 (53.8%) respondents disagreed that projects are completed within budget, whereas only 21 (9.4%) agreed. The fact that most participants agreed that most projects are not completed with budget would certainly have disadvantages both for the business and clients. Businesses may run out of cash, or the client may be asked for additional funds, and this may cause disputes between the project management team and the client resulting in disputes, claims or litigation.

Table 4.3.2.12: Resources are allocated economically

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	64	28.7	28.7	22.0
	Disagree	33	14.8	14.8	36.8
	Not applicable	60	26.9	26.9	63.7
	Agree	49	22.0	22.0	92.4
	Strongly agree	17	7.6	7.6	100.0
	Total	223	100.0	100.0	

These results show that respondents disagreed about resources being allocated economically. Out of the 223 survey respondents, the majority (97) (43.5%) disagreed that resources are allocated economically, and 66 (29.6%) respondents agreed. The fact that the resources are not allocated economically poses an enormous concern to business, particularly since wasted or misused resources will increase the cost of doing business, particularly in light of the fact that many SMEs have restricted budgets for project.

Table 4.3.2.13: The organisation undertakes complex projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	39	17.5	17.5	17.5
	Disagree	42	18.8	18.8	36.3
	Not applicable	54	24.2	24.2	60.5
	Agree	55	24.7	24.7	85.2
	Strongly agree	33	14.8	14.8	100.0
	Total	223	100.0	100.0	

The results on the table above show the responses of respondents on the complexity of projects undertaken by organisations. The results indicated that 81 (36.3%) respondents disagreed that the organisation undertakes complex project, and 88 (39.5%) agreed. There

is a definite relationship between complex projects and SME management capabilities. According to the researcher, if SMEs undertake complex projects, the management capabilities should be increased as well.

Table 4.3.2.14: Management of projects is affected by organisational structure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	30	13.5	13.6	13.6
	Disagree	37	16.6	16.7	30.3
	Not applicable	69	30.9	31.2	61.5
	Agree	68	30.5	30.8	92.3
	Strongly agree	17	7.6	7.7	100.0
	Total	221	99.1	100.0	
Missing	No response	2	.9		
Total		223	100.0		

Table 4.3.2.14 discloses the results based on the responses of respondents on the effects of the organisational structure on the management of projects. Of the 223 survey participants, 68 (30.8%) agreed that management of projects is affected by the organisational structure, whereas only 30 (13.6%) disagreed. One example of how SME organisational structure can impact project management concerns the numerous layers of authority that so often must be navigated to get approval for basic tasks.

Table 4.3.2.15: Goals and objectives for each executed project are clearly stated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	60	26.9	27.0	17.6
	Disagree	71	31.8	32.0	49.5
	Not applicable	40	17.9	18.0	67.6
	Agree	39	17.5	17.6	94.6
	Strongly agree	12	5.4	5.4	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

With reference to the above table, 71 (32.0%) respondents disagreed that goals and objectives for each executed project are clearly stated, whereas only 60 (27.0%) agreed. Given the application of project management, SMEs must set clearly defined and achievable goals and objectives. Consequently, this would assist SMEs with choosing the best leader and most efficient strategies.

Table 4.3.2.16: Projects meet the specifications of the clients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	80	35.9	36.0	14.0
	Disagree	45	20.2	20.3	34.2
	Not applicable	50	22.4	22.5	56.8
	Agree	16	7.2	7.2	64.0
	Strongly agree	31	13.9	14.0	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

Results in Table 4.2.2.16 reveal that 125 (56.3%) respondents disagreed that projects meet the specifications of the clients. Only 37 (21.3%) agreed. Accordingly, there are many consequences arising when a project fails to meet client specifications. One is a dispute between the project managers and the client. A satisfied client will continue to conduct business with an organisation that fulfils its promises whereas dissatisfied clients will choose to do business elsewhere.

Table 4.3.2.17: Feedback meetings on project progress are required

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	70	31.4	31.4	13.0
	Disagree	40	17.9	17.9	30.9
	Not applicable	68	30.5	30.5	61.4
	Agree	29	13.0	13.0	92.8
	Strongly agree	16	7.2	7.2	100.0
	Total	223	100.0	100.0	

Table 4.3.2.17 presents the responses of the respondents on the feedback meetings. Out of the 223 participants of the survey, 70 (31.4%) participants disagreed that feedback meetings on project progress are necessary. Only 40 (17.9%) participants agreed that project progress meetings are called for. Feedback meetings provide an opportunity to make the team aware of what has been completed, what still needs to be done and the milestones that have been achieved. Meetings also aid in ensuring that the team is performing accordingly. The absence of such progress meetings is a contributory factor towards unsatisfactory deliverables.

Table 4.3.2.18: Projects can be successful despite improper application of project management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	27	12.1	12.1	12.1
	Disagree	52	23.3	23.3	35.4
	Not applicable	68	30.5	30.5	65.9
	Agree	55	24.7	24.7	90.6
	Strongly agree	21	9.4	9.4	100.0
	Total	223	100.0	100.0	

Table 4.3.2.18 shows results based on respondents' responses on the success of projects despite proper application of project management. Of the 223 participants taking the survey, a slight majority (79) (35.4%) of participants disagree that a project can be successful despite the improper application of project management, while 76 (34.1%) agree. This is so because for a project to flourish, there are certain aspects that management must be cognisant of, and without these vital factors, a project is slated for failure. The respondents highlighted this as they likely have discovered that project management principles are vital.

Table 4.3.2.19: Senior management support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally unnecessary	7	3.1	3.1	3.1
	Unnecessary	43	19.3	19.3	22.4
	Unsure	35	15.7	15.7	38.1
	Necessary	109	48.9	48.9	87.0
	Totally necessary	29	13.0	13.0	100.0
	Total	223	100.0	100.0	

Results in the table above are the responses of the respondents on senior management support. The majority (48.9%) of participants (138) indicated that senior management is vital for the project team, whereas 43 (19.3%) participants rated it as unnecessary. These results lead to the conclusion that the role of superior towards a project is essential. Most projects have a decentralized system thereby allowing the project team to make some of the more trivial decision, whereas the senior management guides the major decisions.

Table 4.3.2.20: Risk management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally unnecessary	36	16.1	16.2	16.2
	Unnecessary	40	17.9	18.0	34.2
	Unsure	47	21.1	21.2	55.4
	Necessary	69	30.9	31.1	86.5
	Totally necessary	30	13.5	13.5	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

This question prompted respondents to rate the necessity of risk management. The table indicated that risk management is necessary. Of the 223 survey participants, 99 (45.6%) participants rated that a risk management plan is necessary for the project, whereas only 76 (34.2%) rated it as unnecessary. The results clearly show that managing risk is essential. Risk can be either negative or positive. In some firms, being proactive toward risk rather than being reactive is encouraged.

Table 4.3.2.21: Planning, monitoring and controlling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally unnecessary	18	8.1	8.1	8.1
	Unnecessary	23	10.3	10.4	18.5
	Unsure	49	22.0	22.1	40.5
	Necessary	35	15.7	15.8	56.3
	Totally necessary	97	43.5	43.7	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

Table 4.3.2.21 shows that the majority of respondents indicated that planning, monitoring and controlling are necessary for the firm. Out of 223 respondents taking the survey, 102 (59.5%) respondents rated planning, monitoring and controlling as necessary within the firm, followed by 49 (22.1%) respondents who were unsure. Only 41 (8.1%) respondents indicated that planning, monitoring and controlling were unnecessary. The results show that planning is essential as it involves senior management. Planning, monitoring and controlling are significant stages in a project, evident from the results below.

4.3.3 Section C: Factors affecting the application of project management principles

Table 4.3.3.1: Internal factors affecting implementation of project management techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Time and financial constraints	81	18.8	18.9	18.9
	Nature of work done	185	43.0	43.2	62.1
	Company understaffed	132	30.7	30.8	93.0
	Lack of management skills	30	7.0	7.0	100.0
	Total	428	99.5	100.0	
Missing	System	2	.5		
Total		430	100.0		

A question was asked pertaining to how internal factors affect the proper implementation of the project techniques. Data of Table 4.3.3.1 reveal that the majority (185) (43.2%) of respondents indicated the nature of work done, followed by company understaffing (132)

(30.8%), and then time and financial constraints (81) (18.9%) and internal factors affecting the implementation of project management techniques.

Table 4.3.3.2: External factors affecting proper implementation of project management techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government policies	154	35.8	45.6	45.6
	Client interference	147	34.2	43.5	89.1
	Industry slow in accepting change	37	8.6	10.9	100.0
	Total	338	78.6	100.0	
Missing	System	92	21.4		
Total		430	100.0		

A question was asked of respondents to rate how external factors affect the proper implementation of project management. This table demonstrates that the majority (45.6%) of the participants (154) indicated that government policies affect the proper implementation of project management, followed by client interference (147) (43.5%) and then the industry being slow in accepting change (37).

4.3.4 Section D: Project management tools and techniques

Table 4.3.4.1: Gantt Chart tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	28	12.6	13.0	40.3
	No	87	39.0	40.3	53.2
	Do not know	101	45.3	46.8	100.0
	Total	216	96.9	100.0	
Missing	No response	7	3.1		
Total		223	100.0		

Results in Table 4.3.4.1 reveal that the majority (40.3%) of participants (87) disagreed that the firm utilise the Gantt chart tools, whereas 28 (13.0%) of the participants agreed. This result aligns with the results of Moilwa (2013). Henry Gantt developed and used quite a number of charts to help visualize and understand data. The benefits of Gantt Charts include and are not limited to the following; simple and effective method of planning work, it is an easy approach of presenting details so that they can be easily understood and it is a method of getting things done on time (Weaver, 2012:11).

Table 4.3.4.2: Project team technique usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	5.4	5.4	85.1
	No	21	9.4	9.5	94.6
	Do not know	189	84.8	85.1	100.0
	Total	222	99.6	100.0	
Missing	No response	1	.4		
Total		223	100.0		

According to Table 4.3.4.2, 189 (85.1%) survey participants agreed that the firm utilise the project management technique, whereas only 21 (9.5%) disagreed. The finding is similar to that of Moilwa (2013:116) which indicated that throughout the majority of the project, particularly during the initial stages, several project management techniques should be adopted.

Table 4.3.4.3: Work breakdown structure tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	17	7.6	7.7	7.7
	No	18	8.1	8.2	92.3
	Do not know	185	83.0	84.1	100.0
	Total	220	98.7	100.0	
Missing	No response	3	1.3		
Total		223	100.0		

According to Table 4.3.4.3, the majority (84.1%) of participants (185) agreed they utilised work break down structure. Only 18 (8.2%) participants disagreed. This result validated the result of Moilwa (2013), according to whom all the participants agreed that they adopt a lot of project management technique.

Table 4.3.4.4: Earned value method usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	68	30.5	31.1	53.4
	No	34	15.2	15.5	68.9
	Do not know	117	52.5	53.4	100.0
	Total	219	98.2	100.0	
Missing	No response	4	1.8		
Total		223	100.0		

The majority (117) (53.4%) of participants utilise the earned value methods. Only 18 (8.2%) participants disagreed, and 17 (7.7%) do not know. This study aligns with finding from Moilwa (2013).

Table 4.3.4.5: Project planning tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	6.7	6.9	6.9
	No	16	7.2	7.3	93.1
	Do not know	187	3.9	85.8	100.0
	Total	218	97.8	100.0	
Missing	No response	5	2.2		
Total		223	100.0		

Table 4.3.4.5 shows that the majority of respondents indicated a lack of awareness as to whether or not their firm utilised the project planning tool. Of the 223 respondents who took

part in the survey, 187 (85.8%) indicated they do not know whether or not the firm utilised the project planning tools, followed by 15 (6.9%) who agreed that the firm does.

Table 4.3.4.6: Brainstorming technique usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	167	74.9	76.3	76.3
	No	37	16.6	16.9	93.2
	Do not know	15	6.7	6.8	100.0
	Total	219	98.2	100.0	
Missing	No response	4	1.8		
Total		223	100.0		

Table 4.3.4.6 reveals that the majority of respondents agreed the firm utilised brainstorming techniques. Of the 223 survey respondents, the majority (167) (76.3%) of the respondents agreed the firm utilised the brainstorming technique, whereas only 37 (16.9%) of the respondents disagreed.

Table 4.3.4.7: Budget cost analysis usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	127	57.0	57.5	57.5
	No	42	18.8	19.0	76.5
	Do not know	52	23.3	23.5	100.0
	Total	221	99.1	100.0	
Missing	No response	2	.9		
Total		223	100.0		

Table 4.3.4.7 indicates that the majority of participants agreed the firm utilised budget control analysis. Of the 223 participants who took part in the survey, a majority (127) (57.5%) agreed the firm utilised budget cost analysis, and 42 (19.0%) disagreed**.**

Table 4.3.4.8: Does your firm utilise the MS project tool?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	40	17.9	17.9	74.0
	No	18	8.1	8.1	82.1
	Do not know	165	74.0	74.0	100.0
	Total	223	100.0	100.0	

The table above shows that the majority of respondents do not know whether or not their firm utilised the MS project tools. Of the 223 survey participants, the majority (165) (74.0%) acknowledged they do not know whether or not their firm utilised the MS project tool, followed by 40 (17.9%) who agreed the firm utilised the MS project tools, and 18 (8.1%) who disagreed.

Table 4.3.4.9: Critical path method usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	28	12.6	12.7	74.7
	No	28	12.6	12.7	87.3
	Do not know	165	74.0	74.7	100.0
	Total	221	99.1	100.0	
Missing	No response	2	.9		
Total		223	100.0		

The question was asked concerning whether or not the participants' firms utilised the critical path methods, with data in the table showing that the majority (165) (74.7%) of respondents did not know the critical path method, while 28 (12.7%) agreed, and 28 (12.7%) of the respondents disagreed.

Table 4.3.4.10: Organisational breakdown structure tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	69	30.9	31.9	36.6
	No	79	35.43	36.6	68.5
	Do not know	68	30.5	31.5	100.0
	Total	216	96.9	100.0	
Missing	No response	7	3.1		
Total		223	100.0		

Table 4.3.4.10 above shows that the majority of employees disagreed that their firm utilised the organisational breakdown structure tool. Of the 223 survey participants, the majority (79) (36.6%) disagreed that their firm utilised the organisational breakdown structure tools, and 69 (31.9%) respondents agreed. The fact that majority of employees disagreed that the firm does not utilise the work breakdown structure will lead to several consequences. Firstly, the scope of the project might not be accurately and specifically defined and organised. Each level of the breakdown structure shows the deliverables or objectives to a more specific portion. Secondly, a breakdown structure helps in assigning responsibilities, allocating resources and monitoring the project.

Table 4.3.4.11: Quality control technique usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	156	70.0	71.2	71.2
	No	30	13.5	13.7	84.9
	Do not know	33	14.8	15.1	100.0
	Total	219	98.2	100.0	
Missing	No response	4	1.8		
Total		223	100.0		

Table 4.3.4.11 shows that the majority of respondents indicated that their firm utilised the quality control system. Out of the 223 respondents taking the survey, the majority (156) (71.2%) of the respondents indicated their firm utilised quality control techniques, whereas 30 (13.7%) respondents disagreed. This suggests that quality requirements of the project, such as testing and verification, have been implemented.

Table 4.3.4.12: Control chart tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	48	21.5	22.1	22.1
	No	107	48.0	49.3	71.4
	Do not know	62	27.8	28.6	100.0
	Total	217	97.3	100.0	
Missing	No response	6	2.7		
Total		223	100.0		

Table 4.3.4.12 demonstrates that a majority (107) (49.3%) of participants disagreed the firm utilise the control chart tool, whereas only 48 (22.1%) of participants agreed the firm utilised the control chart tool. This finding corroborated with Moilwa (2013), according to whom participants seemed to understand the control chart tools in the construction industry even though the techniques are not used extensively. The fact that participants indicated their firms do not utilise the control chart tool means the management would obviously fail to distinguish process variation attributed to assignable causes versus those caused by un-assignable causes.

Table 4.3.4.13: Project control tool usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	172	77.1	78.5	78.5
	No	22	9.9	10.0	88.6
	Do not know	25	11.2	11.4	100.0
	Total	219	98.2	100.0	
Missing	No response	4	1.8		
Total		223	100.0		

According to Table 4.3.4.13, an overwhelming majority (172) (78.5%) of respondents agree that their firm utilised project control tool. Only 22 (10.0%) of the participants disagreed. This study aligns with the study of Moilwa (2013), according to whom participants were aware of the project management technique. The fact that the majority of respondents agreed that the firm utilised project control tools it is an indication there is a comprehensive approach to learning working practices while simultaneously combating issues such product damage.

4.4 Qualitative data presentation and discussion of results

4.4.1 Findings of the personal interviews categorised according to themes.

The aim of this section is to analyse the transcribed interviews and categorise them into themes.

4.4.2 Are you a project manager?

In an attempt to ensure that every participant was a project manager in their organisation, a question was incorporated to solicit such information.

Table 4.4.2: Project managers in SMEs

Theme question: Are you currently working as a project manager in a small to medium sized enterprise?	
Domain	Interview finding
Project managers	One hundred percent (100%) of the respondents concurred that they are project managers in their firms.

The aim of this question was to determine whether or not the respondents were indeed project managers, to ensure that this study obtains the views of project managers as well as their experiences and perceptions of project management principles. In accordance to this theme, this is what the respondents had to say:

- **Respondent 1**: "*Yes, I am a project manager, if you can put it into those terms*".
- **Respondent 2**: "*Yes, I am currently one of the project managers in this company*".
- **Respondent 3**: "*Yes*".
- **Respondent 4**: "*Yes*".
- **Respondent 5**: "*Yes*".

Summary based on findings in the verbatim responses

As indicated from these responses, everyone interviewed was a project manager. Therefore, it was trusted that the project manager would yield valuable insight for the purpose of drawing conclusions for this research. However, respondents appeared to lack enthusiasm regarding the whole interview process. Additionally, non-verbal cues revealed that although they all called themselves 'project managers', they were not aware that 'project management' is a discipline unto itself, and that it is necessary to learn project management in order to become a reliable project manager. This finding is in line with what Kongolo (2010:2288) found in his study: he affirmed that the main challenges affecting SMEs in South Africa revolve around lack of management skills, lack of finance, lack of appropriate technology and

lack of interest among personnel. The project managers certainly showed not true enthusiasm regarding the discussion of project management.

4.4.3 How long have you been a project manager?

In this section, the findings of the interviews are discussed in correlation to the research question.

Establishing the experience of respondents:

In an attempt to be certain each respondent would yield valuable feedback, this study aimed to interview only project managers who have been involved in project management for more than one year. Hence, the below question was formulated:

Table 4.4.3:   Working as a project manager

Theme question: How long have you been a project manager?	
Domain	Interview finding
Number of years as a project manager	A significant majority, sixty percent (60%) of the respondents, have been project manager for more than 5 years, while the forty percent (40%) have been project managers for an average of 3 years.

The purpose of this section was to identify the number for years respondents have been project managers. The objective was to confirm the number of years participants had been project managers as this would yield significant insights pertaining to the research question. In accordance with theme, here is what respondents had to say:

- **Respondent 1:** "*I have been here in this company for 4 years as project manager*".
- **Respondent 2:** "*For over 6 years, I have been involved in the projects but in this company, it has been 3 years*".
- **Respondent 3:** "*For 2 years currently*".
- **Respondent 4:** "*By end of this year it will mark 5 years*".
- **Respondent 5***:* "*For 7 years*".

Summary of findings based on verbatim responses

Nearly 60% of the respondents have been involved in project management from more than five years, while the remaining 40% acknowledged that they have worked in project management for approximately three years. It is assumed that project managers who have worked an average of less three years are the project managers who have not yet learned much about project management, and hence the difficulty in comprehending project management principles. This finding concurs with the literature. For instance, Mahembe

(2011:7) found that although SMEs represent 90% of private business and further contribute towards employment and GDP, they need much support from the state.

As much as the problem of managing SMEs can be attributed to insufficient experience – as seen both in the literature and the findings of this study – it is evident that SMEs project managers can only gain experience through many years of handling project management, especially in light of the fact that a vast majority of project managers in SMEs have undergone no or only little project management training. Notwithstanding Government initiatives such as Small Enterprises Development Agency (SEDA), the failure rate of SMEs remains alarmingly high. Consequently, researchers have suggested management strategies – such as project management and risk management – to address the survival of SMEs.

4.4.4 Project management principles deployed during project execution

The motive of this section is to establish whether or not SMEs deploy project management principles during project execution. In attaining this, a relevant sub-research question was formulated. The question is answered bellow.

Table 4.4.4: Deployment of project management principles

Theme question: What project management principles are used when executing a project?	
Domain	Interview finding
Project management principles	80% of SMEs deploy project management principles although use thereof varies. 20% have specific principles.

The foregoing table summarised the main finding from the relevant sub-research question. On the left is the domain of the question and on the right hand side is the interview finding. The purpose of this section was to establish the project management principles that SMEs deploy during project execution. As the objective of was to describe the project management principles deployed by SMEs, this is what respondents said:

- **Respondent 1:** "*Firstly it all depends on what you classify as project management principles, from my understanding; it could mean the practices that we pursue with reference to project establishment. We mainly put emphasis mostly on time management that is delivering a project on time as requested by the client*".

- **Respondent 2:** "*We mainly focus on monitoring of projects at each stage until they are completed and finally handed over to the client. In addition to this, there is always teamwork or team spirit I can say and they are always aware of everything taking place including the progress of the project*".

- **Respondent 3:** "*We do not have specific principles; we do what is relevant for a particular project*".

- **Respondent 4:** "*Our primary focus is on firstly grasping the nature of the project at hand so that means understanding the project is a core principle. A job can only get done when the project's requirements are clearly defined. Aims of the project should be clearly defined and set. You cannot talk about project management principles without mentioning the availability of funds and workforce. There must be the availability of managers to provide planning and direction to achieve quality and the project's objectives*".

- **Respondent 5:** "*Indeed project management is in a way practised. We believe everything we do is a project and we strive to ensure that the staff has skills that are needed to fulfil the projects that we run*".

Summary based on the foregoing verbatim responses

Based on respondents' feedback, a significant proportion (80%) of SME managers alluded to the fact that they do utilise project management principles, while the minority (20%) suggested that they only do what is necessary. However, what was pertinent was the fact that some managers were not even aware that what they were doing was part of project management. Take, for instance, feedback from Respondent 2: *"Firstly it all depends on what you classify as project management principles, from my understanding; it could mean the practices that we pursue with reference to project establishment. We mainly put emphasis mostly on time management that is delivering a project on time as requested by the client".*

The literature survey revealed that *project management principles* refer to the generally accepted guidelines of project management, tools and techniques. A successful project is better achieved through the application of sound principles that give guidance in the management of projects. Without a doubt, SMEs apply project management principles, whether consciously or unconsciously.

4.4.5: Project management principles that are most beneficial

The purpose of this section was to determine which of the project management principles deployed by SME managers are beneficial to them.

Table 4.4.5: Beneficial project management principles

Theme question: Which of the project management principles do you find to be most beneficial?	
Domain	Interview finding
Benefits of project management principles	The most outstanding project management principles that are beneficial are time and quality, building team work, and ensuring customer satisfaction.

The preceding table summarises the most beneficial project management principles to SMEs. This question was formulated in conjunction with the following sub-research question: what are the project management tools and techniques used by SMEs? In answering this question, this is what the respondent had to say:

- **Respondent 1:** "*Time and quality are beneficial factors because I find delivery on time and quality to be crucial*".
- **Respondent 2:** "*Teamwork is an important aspect and it all starts with the project manager having the ability to build the team*".
- **Respondent 3:** "*We are often of the idea that a customer comes first in whatever we implement during the project. We always make sure the client is updated on any deviations*".
- **Respondent 4:** "*All principles that I have just mentioned are beneficial*".
- **Respondent 5:** "*Having the right working team is the greatest benefit any project manager can wish for*".

Summary based on the verbatim responses

In view of the feedback from the respondents, there was no universal project management principle that appeared as most beneficial to SMEs. However, there was a short list of principles that were deemed beneficial by SME managers. From the responses of the project managers, the project management principles that were derived are as follows:

- time and quality;
- client satisfaction; and
- teamwork

Chapman (2001) identified the following project management principles:
- understanding customer requirements;
- building a good team; and
- ensuring customer satisfaction.

4.4.6 How do project management principles influence SMEs?

The aim of this section was to determine the influence of project management principles on SMEs.

Table 4.4.6: The influence of project management principles

Theme question: how do project management principles influence SME?	
Domain	Interview finding
Influence of project management principles	All project managers concur that project management principles have a positive influence on the successful completion of a project.

Table 4.4.6 summarises the influence of project management principles on the successful completion of a project. This question was formulated in conjunction with the following subset of the sub-research question: how do project management principles influence SMEs? Here are respondent answers to this question:

- **Respondent 1:** "*Well, I can say in a way they have a positive impact or influence if I can put it in that way because it is mainly about consistency if you are consistent in the way you operate, success becomes a habit*".
- **Respondent 2:** "*Project management principles ensure that the project runs smoothly, they are the aspects or activities that make a project successful*".
- **Respondent 3:** "*Project management principles are a standard way of handling projects, I believe other principles such as time management and cost management play an important role through their influence towards making a project successful*".
- **Respondent 4:** "*They influence the SME as they ensure the success of a project in terms of monetary, completeness and quality. Timely planning will result in timely delivery. It also reduces non-conformance costs such as rework and even as far as losing the contract because no client would want to make a loss from a huge investment of capital*".
- **Respondent 5:** "*Project management principles assist us it makes sure that we finish our projects on time without any hustle and hence contributing towards the growth of the company*".

Summary of the findings based on verbatim responses

All of the project managers indicated that project management principles have a positive influence in a project. For instance, Respondent 1 said: "*Well, I can say in a way they have a positive impact or influence if I can put it in that way because it is mainly about consistency if you are consistent in the way you operate, success becomes a habit*". This means that the

project managers will only derive at a positive influence if the project management principles are applied consistently throughout the project and project after project. This intersects with what Respondent 2 had to say: "*Project management principles ensure that the project runs smoothly, they are the aspects or activities that make a project successful".*

It seems that all the respondents were in agreement that project management principles have a positive influence on the successful completion of the project. However, it is surprising that the literature reports that various factors influence project management principles in a negative light such as Internationalisation (PMI, 2000:27) and cultural influences, where this is defined as the "t*otality of socially transmitted behaviour patterns, arts, beliefs, institutions and all other products of human work and thought*". Projects need to operate within a context of one or more norms. Cultural influences include political, economic, demographic, educational, ethnic, ethical, and religious and other areas of practice that affect the way that people and organisations interact (PMI, 2000:27).

Notwithstanding these factors that hinder project completion, it is evident that project managers only encounter positive inferences from deploying project manage principles; hence, all participants agreed that they have only experienced positive impacts. None indicated negative impacts of project management principles.

4.4.7 Are there challenges associated with deploying project management principles?

The aim of this question was to determine whether or not project managers encounter any setbacks when deploying project management principles. The following section elaborates further on the question.

Table 4.4.7:   Challenges associated with deploying project management principles

Theme question: Are there any challenges associated with deploying project management principles?	
Domain	Interview finding
Challenges of deploying project management principles	The overall finding is that the deployment of these principles presents different challenges to project managers.

The aim of the section is to address the main research question. In line with deployment challenges, this is what participants had to say:

- **Respondent 1:** "*Well, challenges are found anywhere where a vast number or group of people are involved. People may have various opinions pertaining to the establishment of a project and this sometimes creates confusion*".

- **Respondent 2:** "*By trying to keep our projects as simple as we can, we are often faced with challenges whereby the team finds it difficult to understand some aspects because they are from diverse experience backgrounds*".
- **Respondent 3:** "*Yes, especially if there is no synergy amongst team members.*
- **Respondent 4:** "*Sometimes even when everything goes according to plan, there are always setbacks that take place. We sometimes end up incurring some costs just because we will be trying to avoid failures. We incur costs for prototype testing*".
- **Respondent 5:** "*The deployment might not be favourable to the project and therefore cause serious implication such as project closure before project completion*".

Summary of the findings based on the verbatim responses

One hundred percent (100%) of the respondents indicated that the deployment of project management principles presented a variety of challenges. For instance, Respondent 1 asserted that the nature of the project dictates which principle should be adhered to and therefore, this sometimes causes confusion. This is in line with Participant 2 who commented: "*by trying to keep our projects as simple as we can, we are often faced with challenges whereby the team finds it difficult to understand some aspects because they are from diverse experience backgrounds*". Also, Respondent 3 mentioned that challenges arise where there is no synergy amongst team members. In short, the respondents concur with each other that the deployment of project management principles presents a variety of challenges.

4.4.8 Does your company make use of project management tools and techniques?

Table 4.4.8:   The utilisation of project management tools and techniques

Theme question: Does your company make use of project management tools and techniques?	
Domain	Interview finding
The utilisation of project management tools and techniques	All respondents indicated that they do utilise project management tools and techniques, although they were not specific.

The above table establishes the extent to which project managers utilise project management tools and techniques. On the left is the domain of the theme and on the right is the summary of the interviews. Here are respondent comments:

- **Respondent 1:** "*From my understanding, yes we do have tools and techniques in place*".
- **Respondent 2:** "*Yes just a few*".

- **Respondent 3:** "*We do not have a specific set of tools. We use what is relevant or available for a specific situation*".
- **Respondent 4:** "*Yes we have some few tools that we make us of to lessen our workload*".
- **Respondent 5:** "*Yes we make use of various well known established tools*".

Summary of findings based on verbatim responses

Drawing from the verbatim responses, it is evident that 100% of the respondents do utilise project management principles, although they were not specific about which they used and under what circumstances they were used. It seems that most project management in SMEs are not qualified project managers as they have not undergone any formal training nor received tailored education relevant to project management. If the preceding statement was invalid, then these project manager would have been able to indicate much more specifically those tools and techniques used and under what circumstances. Moreover, some would have also indicated specific instances of the application thereof and the outcome. Even the literature survey concurs that most project managers in the SME spectrum are not sufficiently familiar with project management tools and techniques.

4.4.9 How are project management tools and techniques beneficial for the success of a project?

The aim of this section is to present project management tools deemed as beneficial by project managers.

Table 4.4.9: Beneficial project management tools and techniques

Theme question: How are project management tools and technique beneficial for project success?	
Domain	Interview finding
Project management tools beneficial to SMEs	Project management tools are beneficial as they reduce complexities in a project.

The preceding table highlights the benefits of utilising project management tools. This question was asked to establish the benefits of project management tools. Below are respondent comments:

- **Respondent 1:** "*From my own perspective, I deem them necessary as they serve their purpose of having the project delivered on time and according to the specifications of the client*".

- **Respondent 2:** "*They are beneficial and effective as the use of tools and techniques aid in managing our projects and operations*".

- **Respondent 3:** "*It makes it easier for us to trace where we are and where we are heading towards*".

- **Respondent 4:** "*They are beneficial as they provide aid towards simplifying projects and thereby making it easy to understand everything besides the complexity that it contains*".

- **Respondent 5:** "*The structure allows us to plan for budgets as well as to be in a position to identify the tasks that are assigned and the people responsible for fulfilling them. It is also a way of identifying the reporting structure*".

Summary of findings based on verbatim responses

Based on the verbatim responses, project managers agreed that using project management tools was indeed beneficial. Some respondents noted that using these tools has become increasingly beneficial and effective. Moreover, these tools make the project process easier as they have an impact on simplifying a project. In addition, these tools assist project managers in budgeting for a particular project.

4.4.10 Do you encounter challenges when implementing projects?

The aim of this section was to determine the benefits of using project management techniques.

Table 4.4.10:   The benefits of project management techniques

Theme question: Do you encounter challenges when implementing projects?	
Domain	Interview finding
Benefits of project management techniques to SMEs	A vast proportion of the respondents agreed that they encounter challenges, although these challenges vary.

The aim of this question was to establish whether or not project managers encounter any challenges when executing their projects. In response to this question, here is what the respondents had to say:

- **Respondent 1:** "*You see the implementation of a project starts from the time the idea of a project plan is conceived. So there are up and downs along the way that we experience*".

- **Respondent 2:** "*I would say yes*".

- **Respondent 3:** "*We do*".

- **Respondent 4:** "*Yes challenges are inevitable*".
- **Respondent 5:** "*Yes though rarely*".

Summary of findings based on verbatim responses

A vast majority of the respondents indicated that they do encounter challenges and that these challenges vary. Most importantly, one respondent iterated that challenges in a project are somehow inevitable. Only a select few mentioned that they rarely encounter any setback when executing projects.

4.4.11 Challenges faced when implementing a project

The aim of this section is to highlight the challenges project managers encounter when implementing a project. The table below summarises the interview findings based on the respondents' verbatim responses.

Table 4.4.11: Challenges experienced when implementing a project

Theme question: What sort of challenges do you experience when implementing a project?	
Domain	Interview finding
Shared challenges	60% of the project managers labelled 'team dynamics' as their main challenges, while 20% said they face labour unrest and the other 20% said they faced technical challenges.

The above table summarises the challenges faced by project managers when executing a project. In response to this theme of challenges, participants responded as below:

- **Respondent 1:** "*As I have mentioned, a project takes good people of sound mind for the implementation to happen smoothly. And since we have quite a number of people working on the project, one of the major challenges would be time because it takes long for the team to agree on one concept with the client*".
- **Respondent 2:** "*We do experience some challenges especially when the specifications of the client are not clear enough for us to interpret. So on a regular basis; we end up having to meet with the client to avoid diverting from the plan*".
- **Respondent 3:** "*It is said that time is money, yes it is valuable and it is indeed a constraint as well. Conflicts and infighting are rare cases but they take place*".
- **Respondent 4:** "*Sometimes we experience labour unrest which impact labour productivity and thereby affect the progress of the project and this affects the completion of the project*".
- **Respondent 5:** "*Technological failures which might bring the project to a grinding halt*".

Summary of findings based on verbatim responses

Based on the findings, it is evident that project managers encounter challenges when implementing a project. For instance, 60% of the project managers identified team dynamics as their main challenges, while 20% said they faced labour unrest and the other 20% said they faced technical challenges.

4.4.12 How are these challenges mitigated to ensure the success of the project?

The purpose of this theme was to determine how these challenges affect the successful completion of a project. The following table highlights the key interview finding.

Table 4.4.12: Mitigating challenges to ensure successful completion of a project

Theme question: How are these challenges mitigated to ensure the success of the project?	
Domain	Interview finding
Mitigating challenges	60% of the respondents said they create a contingency plan for each project. 20% of the project managers said they monitor a project closely to reduce constraints. An additional 20% said they ask teammates to work overtime.

The above table describes how project managers mitigate challenges they face when executing a project. Here are some responses:

- **Respondent 1:** "*For us to be able to able to mitigate these challenges, we strive by all means to report on progress so as to ensure that we deliver on time and follow the project cycle as it serves as a guide. We always try to ensure that the ultimate service meets the needs of the clients*".
- **Respondent 2:** "*We mitigate these challenges by ensuring that the delivery of the project does not get affected*".
- **Respondent 3:** "*We pre-plan so this reduces the risk of us not finishing on time*".
- **Respondent 4:** "*When we are faced with the challenge of time, we liaise with employees on working overtime without exploiting labour practices*".
- **Respondent 5:** "*Initially when we do project planning, we always have the contingency plan in place in the event of mishaps that might occur. So we always refer to our Plan B so that we deliver a favourable outcome*".

Summary of findings based on verbatim response

Although 60% of the respondents did not exactly state 'contingency plan' as the key strategy, what they did say was categorised into 'contingency planning'. For instance, Respondent 5 said "*initially when we do project planning, we always have the contingency plan in place in*

the event of mishaps that might occur. So we always refer to our Plan B so that we deliver a favourable outcome". Likewise, Respondent 3 admitted: "*we pre-plan so this reduces the risk of us not finishing on time*". In summary, 60% of the respondents acknowledged that they create a contingency plan for each project, while 20% of project managers advised that they monitor projects closely to reduce constraints. An additional 20% said they ask teammates to work overtime.

4.4.13 Other factors

The purpose of this section was to determine whether there are any other factors that were not mentioned to the project managers that might also have an impact on the application of project management principles.

Table 4.4.13:   Other factors

Theme question: If any, can you think of other factors that might affect the proper application of project management principles?	
Domain	Interview finding
Other factors	Only 20% of the project managers did not have any other challenges. On one hand, 40% said time was their other challenge; on the other hand, 40% found the political atmosphere to be their other issue.

The above table summarised any other factors that was might have an impact on the application of project management principles. In response to the question of other factors, this is what the respondents had to say:

- **Respondent 1:** "*In our company, the ones that I have mentioned are the major issues*".
- **Respondent 2:** "*There can be other factors that might affect the proper application and amongst others is time. Time can be a constraint and the management must always ensure that the ultimate service meets the needs of the client*".
- **Respondent 3:** "*I would say the government policies keep on being amended so this creates uncertainty, so in a way this affects us*".
- **Respondent 4:** "*There are times when we are faced with the challenge of compromising quality because time will be greatly constrained*".
- **Respondent 5:** "*Political unrest and strikes are always posing a threat to the application of project management principles*".

Summary of findings based on verbatim responses

On this last particular question, respondents seemed to have lost interest in the interview as their facial expressions portrayed tiredness and a lack of enthusiastic about what they were saying. Moreover, it seemed as if that the respondents were saying anything to get the interview over and done with. The summary of the findings indicate that only 20% of the project managers did not have any other challenges. On one hand, 40% said time was their other challenge, and the remaining 40% attributed remaining challenges to the political atmosphere.

4.5 Qualitative and Quantitative findings

Data in this study was collected using the mixed method approach consisting of quantitative and qualitative research methods in order to understand the research problem (Johnson,Onwuegbuzie & Turner, 2007:119). Therefore it becomes imperative to compare and contrast the findings derived from both research methods.

As such, it is important to take note that planning; controlling and monitoring were deemed as processes that must never be underestimated when dealing with projects. Taking note of quantitative findings, it is evident that the majority of respondents responded by instigating that those three processes are vital. In addition to that, from the qualitative findings it is also essential to mention that the owner-managers also allude with the above.

It is vital and expected that an individual be knowledgeable of what is expected of him or her. From the quantitative findings, it is evident that the project team is knowledgeable of what is expected from each one of them individually and collectively as a team. The owner-managers also add on to the above by citing that there are elements of synergy within the team though at times conflicts arise.

On the techniques, the findings from the quantitative research method are quite evident that brainstorming is a technique that is mostly adopted by most firms this is due of number of respondents who agreed with this notion. It is crystal clear that some techniques are made use of whilst some might not be suited for SMEs.

4.6 Conclusion

This chapter comprised of two sections: quantitative data was presented and analysed in the first section, whereas qualitative data was presented and analysed in the second. Quantitative data was obtained through questionnaires administered to owner-managers of construction firms, event firms, and information technology firms located in the Cape Metropolitan area. The findings were analysed and presented in tabulated format under the

following subheading: demographic variables of participants which included gender, age group, and highest qualification; other data including project management principles, factors affecting the application of project management principles, and project management tools and technique.

In the second section, quantitative data was presented and analysed. Data was gathered through interviews conducted with five project managers. The findings of the personal interviews were categorised according to themes, with an interview guide designed to answer the research question.

Although SME managers indicated their own benefits from project management tools and techniques, the benefits were not far from what the literature suggested. With this in mind, the following question can logically be asked: if SMEs are successfully applying project management principles and are deriving benefits, why are they continuing to fail despite this? The importance of project management to SMEs should not be doubted, yet according to the literature, the larger management and project management communities do little to provide SMEs with proper direction on the management of projects (PMI, 2010). Thomas and Mullaly (2008) found that for organisations to achieve success when it comes to project management, there is a definite need to find an appropriate fit between project management practices and the parent organisation and the nature of projects undertaken. According to Dinsmore (1999), some companies are recommending project management as a basic approach for devising strategies to tackle daily business.

The next chapter provides the key findings, recommendations and finally the conclusion of the study.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The previous chapter revealed the findings of this study. The purpose of this chapter is to conclude the entire research study, chapter by chapter. Thereafter, the limitations of this study and recommendations for future research are highlighted.

5.2 A brief exposition of the preceding chapters

The purpose of this study was as follows:

- to describe the project management principles that best suit SMEs;
- to explore project management tools and techniques used by SMEs; and
- to determine factors affecting the application of project management principles within SMEs.

5.2.1 Chapter One

The purpose of Chapter One was to provide the foundation for this research. Chapter One provided the rationale for this study which was coupled with the statement of the research problem, research question and objectives. Thereafter, a brief overview of the methods used was highlighted.

5.2.2 Chapter Two

The purpose of Chapter Two was to examine relevant literature pertaining to SMEs and their utilisation of project management principles. This chapter gave special attention to current studies in this particular field. Broadly speaking, the literature revealed that although SMEs utilise project management principles, the project managers are not qualified.

5.2.3 Chapter Three

The aim of this chapter was to explain the research methods instituted in this research. This study used a mixed method approach, so the use of various instruments was highlighted herein. This was followed by a brief account of reliability and validity as well the ethical considerations for this research.

5.2.4 Chapter Four

The purpose of this chapter was to present the findings and discussion of both quantitative and qualitative data. On one hand, quantitative data consisted of data obtained from the questionnaires, whereas qualitative data was obtained through a series of face-to-face interviews. The data collected were analysed and presented in conjunction with the research objectives. The finding for the quantitative data was presented in tabular format coupled with brief interpretation. The qualitative data was presented according to themes, with findings of this research answered by the research questions.

5.2.5 Chapter Five

The aim of this chapter is to conclude this research. The objective of this research was achieved and the research question was answered. Recommendations are thereby given to project managers, recommendations intended to guide project managers in the application of both project management principles and techniques to enhance the successful completion of a project.

5.3 Key findings

The purpose of this section is to highlight the key findings from quantitative data and qualitative of this study. The key findings are listed below:

5.3.1 Finding one: demographics

This finding is to provide background information to the research question.

- The majority of the participants who form the project team are males between the ages of 36 to 49 years. Most participants had only a basic education qualification, making it difficult for them to deal with project principles, techniques and tools that require a person with a knowledgeable more highly skilled background.
- Most respondents have been employed for a period between 2-4 years, a significant proportion of whom indicated that they did not have experience needed prior to the execution of projects. This finding shows how lack of experience affects the proper application of project management principles.
- Since the interviews were targeted at project managers, one hundred percent (100%) of the respondents corresponded that they were project managers in their firms. A significant majority, sixty percent (60%) of the respondents, have been project managers for more than five years, while the forty percent (40%) have been project managers for an average of three years.

- Prior to a project, there is always a project plan and there is always a project manager assigned to projects that are executed.

5.3.2 Finding two: project management principles

In order to answer the first research question that sought to understand the project management principles best suited for SMEs, the findings were as follows:

- The project team is not selected on the basis of experience and those who lack experience are not trained.
- Baseline controls are not established.
- The projects are not completed within budget or schedule.
- Resources are uneconomically allocated.
- There is lack of coordination as progress status meetings are not called for.
- The deliverables usually do not meet client expectations.
- Project goals and objectives are not clearly stated from the beginning of the project.
- 80% of SMEs deployed project management principles.
- The most outstanding beneficial project management principles time, quality, building teamwork and ensuring customer satisfaction.
- All project managers agreed that project management principles have a positive influence on the successful completion of a project.
- The overall finding is that the deployment of these principles presents different challenges to project managers.

5.3.3 Finding three: project management tools and techniques

Project management techniques and tools work hand-in-hand and are inseparable. The third research question was concerned with project management tools and techniques used by SMEs, with findings as follows:

The majority of participants agreed that their firms utilise the following project management tools and techniques, although some were not specific:
- earned value methods;
- brainstorming techniques;
- budget control analysis;
- organisational breakdown structure tool; and
- a quality control system.

However, the majority of respondents indicated that they do not know whether the firm utilised the project planning tool, or MS project tools. Furthermore, the majority of participants disagreed that the firm utilise the Gantt chart tools.

According to Khan (2013:16), project management and its techniques allow the managers to concentrate on various aspects of the project and thereby providing the following advantages:

- Better control on human, financial and physical resources.
- Lower costs
- High profit margins
- Higher quality
- Shorter development time
- Improved customer relations
- Improved productivity

From the findings, it is evident that project management tools are beneficial as they reduce complexities in a project.

5.3.4 Finding four: internal and external factors

The third research question concerned the factors affecting the application of project management principles within SMEs, with findings as follows:

- The majority of respondents indicated other factors as the nature of work done, followed by company understaffing, time and financial constraints and lack of management skills.
- The majority of participants also indicated that government policies affect the proper implementation of project management, followed by client interference.
- A vast proportion of the respondents agreed that they encounter challenges, although these challenges vary.
- 60% of the project managers labelled 'team dynamics' as their main challenge, while 20% said they face labour unrest and the other 20% said they faced technical challenges.
- 60% of the respondents said they create a contingency plan for each project, while 20% of the project managers said they monitor projects closely to reduce constraints. An additional 20% said they ask teammates to work overtime.
- Only 20% of the project managers did not have any other challenges, while 40% said time was their other challenge, and then remaining 40% claimed political atmosphere was a challenge.

5.4 Problems and limitations of the research

A prominent obstacle in carrying out this study was time, primarily due to the lengthy period for the researcher to receive feedback from the respondents of the questionnaires. The research ended up taking longer than anticipated. As the research was conducted in the Cape Metropolitan area, there was a further challenge as the researcher was not familiar with the locus of the research. This study was limited to the management of SMEs using project management principles and techniques.

5.5 Recommendations

The objective of this section is to propose a series of recommendations based on the findings of this study. The recommendations are drawn from both qualitative and quantitative findings, as follows:

5.5.1 Affirmative action

It is evident from the findings that the project management sector is still male-dominated; therefore, is it is recommended that women be empowered as active participants in project management, thereby diminishing male supremacy. This can be achieved through acknowledging the Affirmative Action and Employment Equity Act No. 55 of 1998.

5.5.2 Further education and training

Furthermore, the majority of the employees who form the project team only had a basic education qualification, with minimal experience. Therefore, company owner-managers should ensure that when they recruit prospective employees, they should consider someone with a post-Matric qualification. The reasoning capacity of a person with a low educational background can pose a threat to the intensity and intricacy of a project.

Employees who might have a qualification but no project management skills should be sent for skills development training regularly to fully equip them with the most vital skills and competences. When recruiting a project manager, the employers need to consider someone preferably with a degree/qualification in project management.

William Edwards Demming, a great management philosopher, developed 14-points towards quality management and amongst the points he propagated the institutionalisation of a vigorous programme of education and training. Furthermore, he advocated for modern methods of training on the job. This will allow those who are less skilled to acquire mentors who will assist them in developing their skills.

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In addition to educating employees, the use of widely accepted project management standards such as the Guide to Project Management Body of Knowledge (PMBoK) and Association of Project Managers (UK) APM's BoK should be made readily available. Relative to the project management principles that are best suited for SMEs, it is highly recommended that the client be given utmost priority to ensure client satisfaction with the quality of the outcome. This will escalate a positive and promising reputation for the SMEs.

5.5.3 Team roles

As for the team, it is vital that they revisit lessons learnt during the project as this will ensure that they are fully equipped and have increased knowledge when faced with the next similar project. Team building can be promoted through Belbin team roles to identify the talents, personalities, and behavioural strengths and weaknesses of team members in a workplace to best apply these towards project success.

5.5.4 The project management triangle

Time, cost, scope and quality form the project management 'diamond'. Therefore, for a client to be extremely satisfied, the above diamond needs to be well-balanced according to the specifications of the client. It is important, however, that when faced with a narrow budget, a project manager should, early in the project process, suggest the reduction of time or an increase in time. When it comes to limited time, the cost will have to increase and the scope can be reduced. When the scope of the project is incorrectly understood from the start, time and cost will be increased, perhaps inconveniently.

Due to the fact that project deliverables usually do not meet client expectation, it is highly recommended that the client be informed on the project progress on a regular basis; this can be done in the form of weekly reports, or perhaps even more attentively, with nearly daily communications.

5.5.5 SMART goal and objectives

Objectives and goals of a project must be taken into consideration. It is vital for the project manager to create SMART goals (specific, measurable, attainable, realistic and timely) for the team. In that manner, the following positive results emerge:
- The goals are made clear to everyone.
- The time when goals will be achieved is made known.
- Stakeholders are also well-informed.
- The client should be in a position to agree to the proposition,
- The goals should be within the availability of resources.

- There must be enough time to ensure each goal is achieved.

Prior to the inception of a project plan, project managers should set well-defined goals and objectives to avoid having to rely on exit strategies. These well-defined goals and objectives should be linked to the project plan and carefully monitored as this will assist in getting the projects completed within budget and schedule.

5.5.6 Project management tools and techniques

As project management tools and techniques are vital for use in any project, project managers should encourage their teams to use project management tools and techniques that are relevant to the nature and size of project.

Training on the use of other tools and techniques is essential. To avoid the problem of not adhering to the specified timeline, project managers should utilise the work breakdown structure to adhere to the specified task and break the project into manageable deliverables. This makes tasks concrete and attainable and minimises time wasting. Project progress reporting should be maintained so that milestones are measured against time, schedule and scope.

Given that both project management tools and techniques are beneficial, they should be used to complement one another to avoid project complexities.

5.5.7 Environmental factors

Challenges in any project are inevitable. Therefore, project managers should create contingency plans for potential challenges. There are internal issues that affect the proper implementation of project management principles and the project manager must ensure that these are dealt with. As for the nature of work done, the project manager should ensure that specific roles are given to specific people so as to avoid overloading the team. Issues such as company understaffing can be resolved by ensuring that roles and responsibilities of individuals are communicated clearly. The company may need to consider the employment of additional personnel. Alternatively, independent contractors can be hired on a project basis.

Time constraints can be eradicated by establishing timelines through the Gantt chart and measuring milestones. Financial constraints and other resources should be economically allocated and budget-cost analysis should be performed regularly.

It is also advisable that project managers send their team for wellness training to avoid negative team dynamics. And as for the labour unrest, senior managers should engage proactively with unions and delegates. There are inevitable issues such as changes in government policies that may pose threats to a project; therefore, the project managers should ensure that their teams should equip themselves with change management skills.

5.6 Future studies

It is vital that future work focus on the management of SMEs using project management principles on a wider spectrum. This study focused on the Cape Metropolitan area only; therefore, the next suggestion is to focus on South Africa at large.

The other suggestion is to focus on a wider range of industries as this study was limited to information technology, events and construction industries.

5.7 Conclusion

As mentioned in the problem statement, a significant proportion of small business owners manage their projects without applying project management principles. Hence, the primary objective of this study was to determine the extent to which SMEs apply project management principles. This study, in employing a mixed method approach and various instruments to collect and analyse data, found that the project management sector is still male-dominated; project teams are not selected on the basis of experience; and those who lack experience are not trained. Furthermore, the nature of work done, company understaffing, time and financial constraints, and negative team dynamics were cited as factors affecting the application of project management principles within SMEs. Originating from these and other findings, conclusions were drawn and recommendations made.

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APPENDIX A: PERMISSION-SEEKING LETTER

Cape Peninsula University of Technology
PO Box 652
Cape Town
8000

18 February 2014

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR COMPANY

Dear Sir/Madam

I hereby request permission to conduct research in your company. My name Faith Chivimbiso Wadzwanya, and I am a Master of technology: Business Administration (Entrepreneurship) student at the Cape Peninsula University of Technology. The research I wish to conduct for my Master's thesis under the supervision of Mr Stanley Fore and Prof Chux Gervase Iwu, entitled, "**Managing Small and Medium Enterprises using project management principles**". Your company has been identified because it is within the researcher's reach.

I am hereby seeking your consent to approach some of your employees to aid as participants through questionnaires and interviews for this project. Anonymity of participants is guaranteed. It would be highly appreciated if you may assist in any way possible as this will contribute towards the expansion of knowledge in the SME sector.

Should you wish to assist me, a copy of your approval letter is requested which I need to submit to the Higher Degrees Committee for ethics clearance. Upon completion of the study, I undertake to provide your company with a full research report. If you require any further information, please do not hesitate to contact me at 209213000@mycput.ac.za or my supervisor at fores@cput.ac.za (021 460 3516)

Thank you for your time and consideration in this matter.

I thank you in advance.

Yours sincerely,

Faith C Wadzwanya
Cell: 073 624 7655

APPENDIX B: CERTIFICATE OF AUTHENTICITY

CP ChickPea

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05 May 2017

To Whom It May Concern

This is to certify that "MANAGING SMALL AND MEDIUM ENTERPRISES USING PROJECT MANAGEMENT PRINCIPLES" by **FAITH CHIVIMBISO WADZWANYA** for **CPUT (Faculty of Business and Management Sciences)** has been professionally edited by Dr Laura Budler-Kleinhans of ChickPea Proofreading and Editing Services for Students and Professionals.

Document:

Job Number	Document title
0505(FCW)	MANAGING SMALL AND MEDIUM ENTERPRISES USING PROJECT MANAGEMENT PRINCIPLES

Dr. Laura Budler-Kleinhans
CEO ChickPea

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APPENDIX C: LETTER FROM COMPANY

AMICABLE MOBILE VENTURE
REFERENCE: 2009/110617/23 TELEPHONE: 021 462 0550
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21 August 2013

TO WHOM IT MAY CONCERN

RE: <u>**APPROVAL IN RESPECT OF REQUEST TO CONDUCT RESEARCH**</u>

This letter serves to indicate that approval is hereby granted to **Faith Chivimbiso Wadzwanya** with student number **209213000** to proceed with research in respect of the study, *Managing Small and Medium Enterprises using project management principles.* The onus rests with the researcher to negotiate appropriate and relevant time schedule with the company's employees.

We are looking forward to working with you.

Yours sincerely,

E. S. femuyiva

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APPENDIX D: QUESTIONNAIRE

Please indicate your answer with an (X)

Are you aware of project management principles?			
Yes	1	No	2

If your answer is 'No' on the above question, do not continue answering the questionnaire, if is 'Yes' you may continue.

SECTION A: DEMOGRAPHICS

1. Gender			
Female	1	Male	2

2. Age group			
Under 24	1	36-49	3
25-35	2	50 plus	4

3. Highest Qualification			
PhD	1	Certificate	5
Master's	2	Matric	6
Degree/Honours	3	Below Matric	7
Diploma	4	Other (specify)	8

4. How long have you been with the firm?	
Less than 1 year	1
2-4years	2
5-7years	3
More than 8	4

5. Which industry does your company fall under?	
Construction	1
Events	2
IT	3

6. How many employees are involved in projects?			
Less than 20	1	50-200	3
20-50	2	More than 200	4

7. Do you have experience in the projects you execute?			
Yes	1	**No**	2

SECTION B: PROJECT MANAGEMENT PRINCIPLES

8. Please indicate an 'X' to what extent you strongly agree or strongly disagree with the statements below:					
	Strongly disagree	**Disagree**	**Not applicable**	**Agree**	**Strongly agree**
Prior to the execution of a project, management team prepare a project plan.	1	2	3	4	5
Our project plan normally includes a scope planning section.	1	2	3	4	5
A schedule planning section is normally included in our project plan.	1	2	3	4	5
Work breakdown structure is included in our project plan.	1	2	3	4	5
Normally the overall project cost is included in the project planning	1	2	3	4	5
The project team is skilled and knowledgeable about the projects executed.	1	2	3	4	5
The project team is selected on the basis of experience and skills of the project to be executed	1	2	3	4	5
The project team is trained if they have no experience on the project.	1	2	3	4	5
There is always an appointed project leader/manager for every project we execute.	1	2	3	4	5
Baseline controls are established for	1	2	3	4	5

different sphere of the project					
	Strongly disagree	**Disagree**	**Not applicable**	**Agree**	**Strongly agree**
The project executions are evaluated against the project plan.	1	2	3	4	5
Projects are completed within schedule.	1	2	3	4	5
Projects are completed within budget.	1	2	3	4	5
Resources are allocated economically.	1	2	3	4	5
The organisation undertakes complex projects.	1	2	3	4	5
The management of projects is affected by the organisational structure.	1	2	3	4	5
The goals and objectives are clearly stated.	1	2	3	4	5
The projects meet the specifications of the client.	1	2	3	4	5
Feedback meetings on project progress are called for.	1	2	3	4	5
A project can be successful despite the improper application of project management.	1	2	3	4	5

9. How would you rate the following success factors with regards to your firm?					
	Totally unnecessary	**Unnecessary**	**Unsure**	**Necessary**	**Totally necessary**
Senior management support	1	2	3	4	5
Clear objectives and goals	1	2	3	4	5
Resource allocation	1	2	3	4	5
Risk management	1	2	3	4	5
Planning, monitoring and controlling	1	2	3	4	5

SECTION C: PROJECT MANAGEMENT TOOLS AND TECHNIQUES

10. From the following list of project management tools and techniques, which one does your firm utilise? *tick one or more options			
Tools and Techniques	**Yes**	**No**	**Don't know**
Gantt chart	1	2	3
Project teams	1	2	3
Work breakdown structure	1	2	3
Earned value method	1	2	3
Project planning	1	2	3
Brainstorming	1	2	3
Budget cost analysis	1	2	3
MS Project	1	2	3
Critical path method	1	2	3
Organisational breakdown structure	1	2	3
Quality control	1	2	3
Control charts	1	2	3
Project control	1	2	3

SECTION D: FACTORS AFFECTING THE APPLICATION OF PROJECT MANAGEMENT PRINCIPLES

11. Which internal factors affect the proper implementation of project management techniques? * tick one or more options	
Time and financial constraints	1
Nature of work done	2
Company understaffed	3
Lack of management skills	4
Others (specify)	5

12. Which external factors affect the proper implementation of project management techniques? *tick one or more options	
Government policies	1
Client interference	2
Industry slow in accepting change	3

I thank you for your participation in this study.

APPENDIX E: INTERVIEW GUIDE

Cape Peninsula
University of Technology

AIM OF THE STUDY: To determine the extent to which SMEs apply project management principles.

	CONSENT TO PARTICIPATE IN THE STUDY				
1	I do agree to participate in this study.	Yes		No	
2	I am aware that participating in this study is voluntary.	Yes		No	
3	I am aware that my identity will be kept confidential and that none of my responses will be traced back to me.	Yes		No	
4	I understand that I am at liberty to not answer any question that I do not wish to answer.	Yes		No	

Day of interview ....

Time of interview ....

Locus:..

	QUESTIONS	CHECK
1	Are you currently working as a project manager in a Small to Medium-sized Enterprise (SME)?	
2	How long have you been a project manager?	
	Now, we are going to talk about project management principles, project management tools and techniques, and also the factors that affect the application of project management principles within Small to Medium-sized enterprises (SMEs).	
3	**What project management principles are best suited for SMEs?** Given that you currently work as project manager in a SME:	
	3.1 What project management principles do you deploy when executing a project?	
	3.2 Which of the project management principles do you find to be most	

	beneficial?	
	3.3 Apart from the one mentioned above, how do these project management principles influence your SME?	
	3.4 Given the foregoing, how do these project management principles suit SME operations?	
	3.5 Are there any challenges associated with deploying project management principles?	
4	**What are the project management tools and techniques used by SMEs?**	
	4.1 Does your company make use of project management tools and techniques?	
	4.2 Which project management tools does your company use when executing a project?	
	4.3 Which project management techniques does your company deploy when executing projects?	
	4.4 How beneficial are project management tools towards the success of a project?	
	4.5 How beneficial are project management techniques towards the success of a project?	
	4.6 Have you experienced any challenges while using project management principles and techniques?	
5	**What factors affect the application of project management principles within SMEs?**	
	5.1 Do you experience challenges when implementing projects?	
	5.2 What sort of challenges do you experience when implementing projects?	
	5.3 How do these challenges affect the application of project management principles?	
	5.4 How are these challenges mitigated to ensure a successful project outcome?	
	5.5 If any, can you think of other factors that might affect the proper application of project management principles?	

THE END, THANK YOU

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