FORMAL PROJECT MANAGEMENT ADOPTION READINESS OF EMERGING CONSTRUCTION FIRMS IN SOUTH AFRICA: THE CASE OF MANGAUNG METROPOLITAN MUNICIPALITY

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DECLARATION

I, Julius Akaba, passport number [redacted] and student number [redacted], do hereby declare that this research project submitted to the Central University of Technology, Free State for the degree MAGISTER TECHNOLOGIAE: Business Administration is my own independent work; and complies with the Code of Academic Integrity, as well as other relevant policies, procedures, rules and regulations of the Central University of Technology, Free State; and has not been submitted before to any institution by myself or any other person in fulfilment (or partial fulfilment) of the requirements for the attainment of any qualification.

Signature of Student Date

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ABSTRACT

The drive towards Broad-based Black Economic Empowerment in this industry has been marred by evidence of poor quality construction, delays in project execution and completion leading to cost overruns and general public dissatisfaction with Emerging Construction Firms' (ECFs') structures. Since some of these challenges are attributed directly to poor project management practices and dearth of project management skills by most ECFs, there is scope to examine the interface between construction entrepreneurship and adoption of project management practices/techniques mindful of the ECFs' involvement in government's construction programmes and projects.

It is against this background that the current study explored the formal project management adoption readiness of ECFs in Mangaung Metropolitan Municipality. The thesis statement of this study is that since organisational culture, organisational structure and project management skills constitute the foundation for successful project management, any effective model on project management readiness of ECFs should strongly dovetail with their business strategy as well as these organisational variables.

Drawing on a survey design, data were collected from 334 ECFs graded at category 1 to 5 by the Construction Industry Development Board (CIDB) in the Mangaung Metropolitan Municipality of the Free State province of South Africa.

The key findings from the empirical study are:

- Although majority of the ECFs surveyed have high levels of qualification in general education, only a few actually have high level of project management qualification.
- Majority of the ECFs surveyed also consider project management skills core skills in undertaking projects in order to achieve successful project outcomes.

- The current organisational culture and structure of the ECFs surveyed largely support the adoption and implementation of project management techniques and tools.

The study recommends project management, construction and business education training for ECFs. In addition, the study recommends research into actual project management adoption of ECFs as this study was only limited to exploring adoption readiness.

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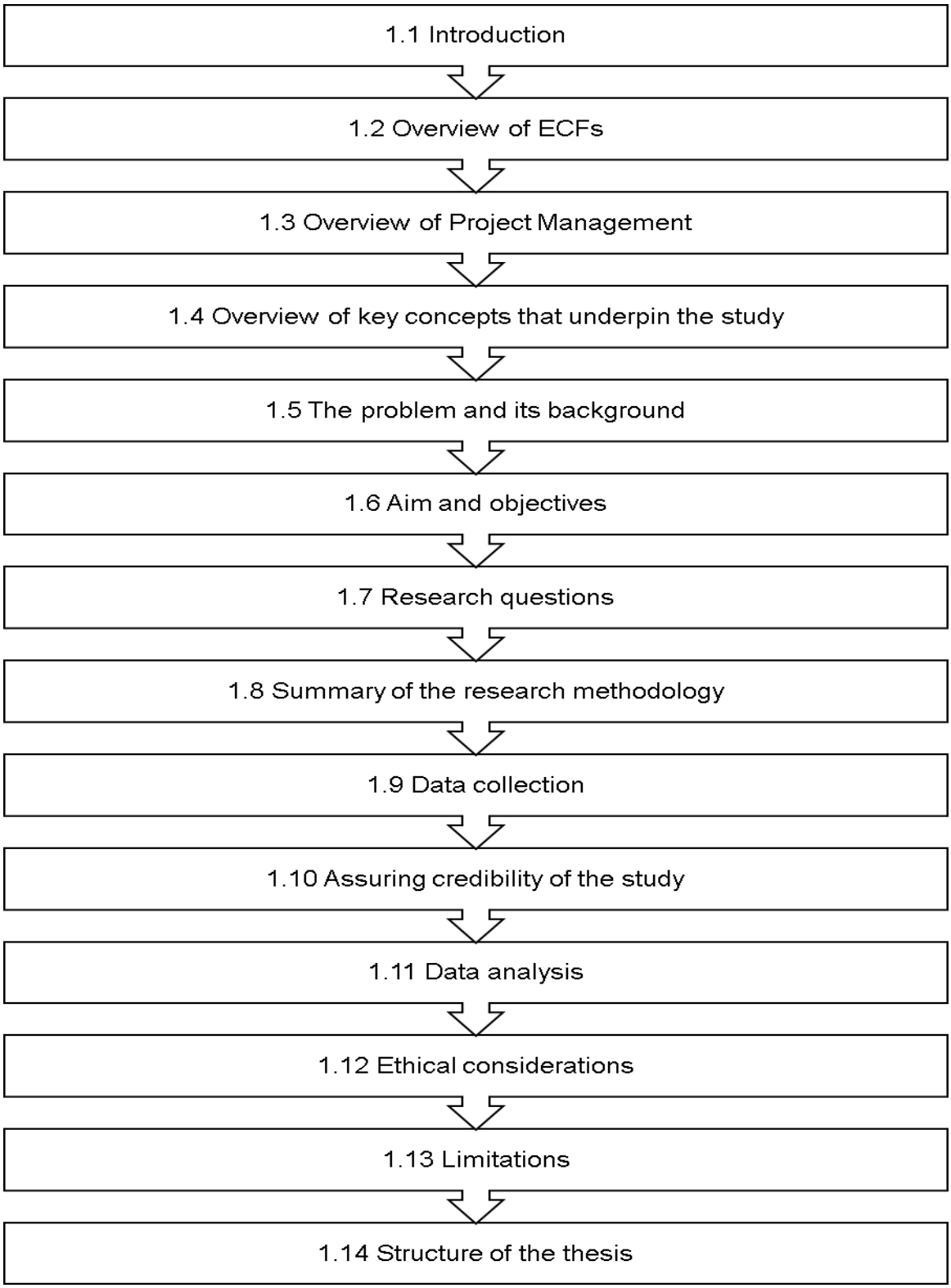


1.1 INTRODUCTION

This study focused on investigating formal Project Management (PM) adoption readiness of Emerging Construction Firms (ECFs) in Mangaung Metropolitan Municipality (MMM). In this study, the term ECFs refers to small construction businesses that are operated by individuals called Emerging Contractors (ECs). The two terms are therefore very much related and are therefore used interchangeably in this study. The key components of the study are therefore, ECFs, project management adoption readiness which is dependent on organisational culture, structure and project management skills. The relationship between organisational culture, structure and project management skills were considered the conceptual framework of the study are further discussed in Chapter 3 (Section 3.10).

The need for this study arises precisely because it is reasonable to assume that any organisation that directs projects needs to possess project management capabilities in order to deliver projects on time, within budget, within scope and according to stated quality standards (Maley, 2012:3) – the main criteria for judging project success or failure. Considering that the construction business by nature is a project endeavour (Larson & Gray, 2011:3) and the fact that ECFs mainly operate in the construction industry, ECFs must have industry recognised project management systems and capabilities in place to successfully execute projects. Unfortunately, there is evidence which suggests that many ECFs may not have formal project management systems in place (Construction Industry Development Board [CIDB], 2011a:7).

The above situation is worrying because, in the absence of recognised project management methodology, ECFs may simply undertake projects haphazardly. The fact that the emerging construction industry is considered a high risk sector by construction clients and suppliers (Lazarus, 2008) somewhat lends credence to the notion that ECFs might not be following formal and recognised project management methodology in executing projects assigned to them. Assuming this to be the case, there is need to change their mind-set. To do this however first requires a full comprehension of the nature of the South African ECFs. The next section provides a

summary of the nature and environment of ECFs in South Africa. A fuller discussion is however undertaken in the literature review part of this study.

1.2 OVERVIEW OF ECFs

This section provides synopsis of the South African ECFs and their environment.

1.2.1 Rationale/ emergence of ECFs in South Africa

The emergence of ECFs and their development programme can be traced to the South African government's effort to economically empower individuals from the previously disadvantaged population groups (blacks, women, disabled, Coloureds and Indians) through ownership of small businesses that are in the construction industry (BBBEE Act, 2003:3; CIDB, 2011a:4; Thwala & Phaladi, 2009:196). Thus, the term "emerging contractor" is used to refer to individuals from the aforementioned disadvantaged racial groups who own and manage small businesses in the construction industry.

These individuals were discriminated against during the apartheid era regarding access to higher education as only 8.6% and 7.7% of the black and coloureds respectively had access to higher education (Stats SA, 2012:8) - a level of education that no doubt enhances and enables the acquisition of skills and techniques needed for business and managerial decision-making. Incidentally, the population census report (Stats SA, 2012:1) indicates that the black and coloured population groups alone make up 88.1% of the total population of the country, thereby leaving a huge proportion of the population unskilled, and largely unemployable hence deprived of engaging in meaningful economic activity.

By targeting these previously disadvantaged people to participate in the emerging contractor development programme the government is seen as using the construction industry as one of its main instruments in empowering previously disadvantaged population groups economically.

1.2.2 Synopsis of the contribution of the construction industry and ECFs

The construction industry has become the key to the sustainable economic growth and infrastructure development of countries all over the world (Tshivhase & Worku, 2012:268) with South Africa being no exception.

Among others, in South Africa, the construction industry is noted to have contributed significantly to the Gross Domestic Product (GDP) through investment, and has offered employment to more than 500,000 people (Industrial Development Corporation, 2016; Stat SA, 2016a; Stat SA, 2016b). The domestic construction expenditure of South Africa is estimated to be about 40% to 50% of all government construction expenditure (Ncwadi & Dangalazana, 2006:186). In addition, government total capital expenditure on new constructions in 2015 increased by 51% when compared with 2014 figure (Stat SA, 2016c). Also, ECFs are seen as a very important instrument for job creation, income generation, economic growth and promotion of entrepreneurship in South Africa, because of their ability to work in very remote locations as well as the low cost of services that they render (CIDB, 2011a:5).

1.2.3 Overview of problems confronting ECFs

Activities of ECFs are not without complaints and challenges in South Africa, despite enabling policies and framework support from government over the years. For example, the performance of ECFs has been characterised by slow delivery of projects due to poor capacity, cost overrun, low productivity and poor workmanship (Ncwadi & Dangalazana, 2006:186). Many of the challenges faced by ECFs stem from their inability to use formal project management methodology (CIBD, 2011a:7; Thwala & Mofokeng, 2012:147). Yet the construction business, as stated earlier, is project-oriented in nature (Larson & Gray, 2011:5). Thus, the use of formal project management becomes important in achieving the desired project objectives. But what does formal project management entail?

1.3 OVERVIEW OF PROJECT MANAGEMENT

In this section, the concept of project management is defined. This is followed by the introduction of key project management activities (techniques). The section concludes with a discussion of some benefits of project management, and project management in small businesses including ECFs.

1.3.1 What is project management?

Brown and Hyer (2010:2) define project management as a temporary endeavour undertaken with the intention of solving a problem, seizing an opportunity or responding to a mandate. Another definition worth considering for the purpose of this research is the definition by the Project Management Institute (PMI). PMI (2008:6) defines project management as the application of knowledge, skills, tools and techniques to project activities to meet project objectives. These two definitions highlight the key consideration of the research in terms of the role of project management in service delivery, as well as the skills, knowledge and techniques ECFs need to undertake service delivery using the project management approach. Project management can therefore be described as *the application of knowledge, skills, tools and techniques by ECFs to temporary activities aimed at solving problems, seizing opportunities and responding to mandates at a chosen location*. This depiction of project management as a set of activities requires one to explain what the activities are.

1.3.2 Overview of project management activities

In order for project management methodology to be applied in any organisation, the PMI (2008:6) identifies five key activities that need to be taken into consideration. The activities are (i) initiation; (ii) planning; (iii) execution; (iv) monitoring and control; and (v) closure.

These activities form the guiding framework for achieving project objectives using the project management tools and techniques (PMI, 2008:6). Brown and Hyer (2010:12) indicate that even though the five key activities need to be followed in a sequential

fashion, often, the sequence is overlapping and iterative in some projects yet they are able to achieve successful results.

Each of the five key project management activities identified by PMI (2008) can be briefly described as follows.

- **Project Initiation** - processes performed to define a new project or a project phase and also by obtaining authorization to start the project or a project phase.
- **Project Planning** - processes performed to establish the scope of the project, define and refine the objectives and plan actions to achieve the objectives.
- **Project Execution** – processes performed to complete the work defined in the project management plan to accomplish project specifications.
- **Project Monitoring and Control** – processes performed to track, review and regulate the progress and performance of the project.
- **Project Closure** – processes performed to finalize all project activities to formally complete the project.

Even when followed rigorously, these activities might not eliminate all problems with a project. However, following them could give the project team or the ECFs early warning signs so that contingency plans and corrective actions could be applied to put the project back on track (Bourgeois, 2008:23). In the end, project management adoption is expected to make an organisation more effective (Ladika, 2008:32). From this perspective, project management benefits organisations that adopt it (Meredith & Mantel, 2010:13).

1.3.3 Benefits of project management

Firstly, the adoption and use of project management techniques and tools have the potential for helping organisations measure their performance against plans which could help them know how they are doing in terms of their project objectives (Kerzner, 2013:3). Kerzner (2013) also indicates that another benefit to the project team is being

able to detect problems within the organisation early enough so that proactive corrective action can be taken. Thus, the adoption of project management techniques and tools will enable ECFs to improve their performance and achieve the purpose of their business activities, which is profit making while delivering quality projects.

1.4 OVERVIEW OF KEY CONCEPTS THAT UNDERPIN THE STUDY

This study explores ECFs' readiness for adoption of project management techniques and methodologies. The adoption of any new process in an organisation should imply some sort of organisational change. Therefore, in conceptualising ECFs' readiness for adoption of project management, it is imperative to outline the key constructs that underlie this organisational change process as well. Therefore, the key constructs explored in this study include project management adoption readiness, organisational change readiness, organisational structure, organisational culture and organisational skills. These concepts/ constructs underpinning the study are briefly outlined here with a more detailed discussion on them found in the literature review.

1.4.1 Organisational change and its management and change readiness

The introduction of project management techniques and tools in ECFs implies some form of change at the individual or organisational level, depending on the size of the organisation (Kloppenborg, 2012:59; Senior & Swailes, 2010:4). Two major issues related to organisational change are its management and change readiness.

Firstly, organisational change has to be managed effectively with the right change management approach, taking into consideration people who are the key resources in any organisation (Grobler et al., 2011:13). So, organisational change brings into question organisational change management (OCM).

Although OCM is defined differently by various authors including Moran and Brightman (2001:111); Cummings and Worley (2005); and Prosci Inc (2014), for this study, OCM means a structured approach for ensuring that changes are effected such that it facilitates the adoption of a structured change by groups and individuals within ECFs in the study area.

Unlike large organisations where change usually requires significant amount of resources and efforts (Weiner et al., 2008), in small organisations such as ECFs, which are resource constrained, would naturally be faced with challenges in the change management process because the change process consumes significant amounts of scarce resources that small businesses are noted for and effort. However, due to their smallness, ECFs are advantaged due to their flexibility, effective communication, less effort in effecting cultural or structural change and greater levels of participation as they embark on the change process (Hansson & Klefsjo, 2003:71).

With regards to readiness, organisational readiness for change should be a critical precursor to successful implementation of organisational change (Weiner, et al.; Amatayakul, 2005; Kirch et al., 2005; O'Connor & Fiol, 2006). Moreover, for the change readiness of an organisation to be determined, it must be measured against the willingness of the individuals within the organisation to accept and effect change (Van Tonder, 2004:8). Therefore, in order to fully understand how to conduct change management in ECFs, it is important to also understand what constitutes change readiness.

The readiness of an organisation to change depends on how proactively the organisation reacts to occurrences within its area(s) of operation. The frequent changes in the external environment demands that organisations always be ready to adopt and implement changes to aid them achieve their objectives. This means that both internal variables (employees' willingness to change) and external variables are critical in influencing change within an organisation. However, Burke (2008:25) argues that, for organisations to achieve successful and effective change, the decision to change must be based on data about changing trends in the external environment that relate to the organisation.

An organisation's ability to make decision that will promote the attainment of its objectives depends on its ability to flexibly adapt to changing trends in the external environment. For ECFs as well, the readiness to change must also be based on data

on the changing trends in the external environment and the extent of adaptation of the organisation to this environment to ensure the attainment of project execution objectives.

In his seminal work on change management, Kotter (1996) found that only 30% of organisational change was successful because such changes were not premised on change readiness. Kotter (1996) attributed this high failure rate to organisational leaders who had failed to establish sufficient change readiness. Therefore, in order to implement any change, it is important to determine change readiness in order to make such a change successful (Bricknell et al., 2011:334).

But besides change readiness, organisational culture and structure are also key factors in determining the readiness of an organisation to adopt and implement project management techniques and tools in the achievement of its goals (PMI, 2008:27). The following subsections consider organisational culture and organisational structure.

1.4.2 Organisational culture

The culture of an organisation comprises the formal and informal practices and values that are shared among members of the organisation, and that are taught to new members (Kloppenborg, 2012:59). These values and practices are what influence the performance of the organisation in the discharge of its mandates for the achievement of the set goals. In ECFs the culture might not be formally entrenched, since ECFs are mostly sole proprietorship in nature, where the firm is owned by one person and the organisation is run mainly on an informal basis.

1.4.3 Organisational structure

PMI (2008:28) defines organisational structure as an enterprise environmental factor, which affects the availability of resources and influences how projects are conducted. Organisational structure includes the formal reporting relationships, the grouping of individuals into departments and effective communication and coordination across departments. This affects how projects are managed and delivered (Pinto, 2010:62).

Las but not the least, Pinto (2010) further indicates that within the project management context, the structure of the organisation in developing the project, and the internal structure of the project team affects the manner in which the project is accomplished. For ECFs, organisational structure is either non-existent or exists only in an informal manner. This is because the activities of ECFs are informal in nature. Project management adoption in ECFs might therefore not take the same approach as in larger and formal organisations.

Based on the foregone introductory discussions, it is now possible to present and discuss the problem at hand as well as its setting.

1.5 THE PROBLEM AND ITS BACKGROUND

1.5.1 The problem background

Any organisation that executes projects needs to possess project management capability in order to deliver on time, within budget and according to stated quality standard (Maley, 2012:3; Meredith & Mantel, 2010:13). Activities of ECFs are mainly in the construction industry of the South African economy (CIDB, 2011:4; BBBEE Act, 2003). Construction businesses by nature are project endeavours (Larson & Gray, 2011:3). Thus, activities of ECFs are project based. Therefore, ECFs must have project management systems and capabilities in place to successfully direct projects (Maley, 2012:3; Larson & Gray, 2011; Meredith & Mantel, 2010:13). However, many ECFs are reported not possessing formal project management systems in place (CIDB, 2011:7). So, ECFs may simply undertake projects haphazardly, without conforming to any project management methodology. Under such circumstances, the logical result would be failure to successfully execute projects.

Not surprising, the emerging construction industry is considered a very high risk sector by construction clients and suppliers (CIDB, 2011; Lazarus, 2008). In order for ECFs to shed the image of high risk association, there is a need for them to implement formal project management systems. However, formal project management adoption by ECFs implies some form of organisational change on their part (Pryor et al., 2008:1;

Weiner et al., 2008:379; Cummings & Worley, 2005). Moreover, any change implementation requires determining change readiness in order to make such a change successful as pointed out earlier (Bricknell et al., 2011:334; Weiner et al., 2008; O'Connor & Fiol, 2006; Amatayakul, 2005; Kirch et al., 2005;).

1.5.2 The problem

ECFs in South Africa continue to face a number of challenges despite enabling policies and framework such as the BBBEE and PPP support. Clearly, the performance of ECFs in terms of project execution is substandard and characterised by slow delivery, cost overruns, low productivity and poor workmanship (Ncwadi & Dangalazan, 2006:186). Many of these challenges are perceived to stem from the inability of ECFs to use formal project management techniques and tools (CIDB, 2011a:7).

While the inability of ECFs to use project management techniques and strategies is well documented (CIDB, 2011a; Thwala & Mofokeng, 2012:147), their level of project management readiness (competence) and use of associated project management techniques remain unknown due to lack of robust research into their activities (Mafimidiwo & Iyagba, 2015:102; Turner, Ledwith, & Kelly, 2010). According to Mafimidiwo and Iyagba (2015:102) and Turner et al. (2010), there is limited research on ECFs and SMMEs in general suggesting that the perception that SMMEs have project management issues is circumstantial. In line with this argument, this study investigates formal project management adoption readiness of ECFs in Mangaung Metropolitan Municipality.

1.6 AIM AND OBJECTIVES

The study is aimed at making a practical contribution to project management adoption by ECFs so as to facilitate the transformation of these small contractor firms, many of which are informal undertakings, into vibrant and effective entities in the industry. It is also aimed at addressing gaps in the small contractor and for that matter construction literature. Towards achievement of these aims, the following main as well as sub-objectives were formulated for the study.

1.6.1 Main objective

The main objective of this study is to establish the formal project management adoption readiness of ECFs in the MMM.

1.6.2 Sub-objectives

1. To determine the extent to which ECFs in MMM consider project management a core skill;
2. To determine the level of project management skills possessed by ECFs in MMM;
3. To assess the organisational structure of ECFs in MMM;
4. To determine the extent to which organisational culture of ECFs in MMM support project management processes;
5. To examine the extent to which ECFs in MMM adhere to project management processes (i.e. project initiation, planning, execution, controlling and closing projects);
6. To determine the extent of ECFs in MMM's commitment to a long term project management implementation process.

1.7 RESEARCH QUESTIONS

In order to address the research problem stated above, the research questions below are raised.

1.7.1 Main research question

What is the level of readiness of ECFs in MMM in adopting formal project management practices?

1.7.2 Sub-research questions

In order to address the main research question, the following sub questions were considered.

1. To what extent do ECFs in MMM consider project management a core skill?
2. What is the level of project management skills possessed by ECFs in MMM?
3. What is the main organisational structure of ECFs in MMM?
4. To what extent does the organisational culture of ECFs in MMM support project management processes?
5. To what extent do ECFs in MMM adhere to project management processes (i.e. project initiation, planning, execution, controlling and closing projects)?
6. To what extent are owners/managers of ECFs in MMM committed to long-term implementation of project management process?

1.8 SUMMARY OF THE RESEARCH METHODOLOGY

Dawson (2009:14), defines research methodology as incorporating the philosophy and the research activities (methods) undertaken by the researcher. This part of the study summarises the philosophy guiding the research, and the methods applied. A more detailed discussion is presented in Chapter 4.

1.8.1 The adopted research philosophy

Generally speaking, research philosophy, also called the research paradigm (Welman, Kruger & Mitchell, 2005:6; Bryman & Bell, 2007:16; Bernard, 2013:7) is classified either as positivist or anti-positivist/interpretivist. The guiding research paradigm for this study is positivism – an approach that follows the scientific method of the natural sciences, which favours researcher objectivity and independence, as opposed to interpretivism which encourages subjectivity, especially in social research (Welman, et al, 2005:6; Bryman & Bell, 2007:16; Kumar, 2011:104). The adopted paradigm invariably determines the research design (Kumar, 2011:104).

1.8.2 Research design

Consistent with the positivist paradigm, a quantitative research design was followed. Kumar (2014:14) and Maree (2007:145) maintain that a quantitative design implies

systematic and objective ways of using numerical data from a sample of a population to generalise the findings to the population being studied.

The study used the survey research method. This approach was chosen given that the purpose of the research is to collect and analyse sample empirical data from a large population using statistical techniques (Curtis & Curtis, 2011:122). Statistics were generated from data collected using structured questionnaire (Dawson, 2009:14).

1.8.3 Target population

The target population for this study is CIDB registered grade 1 to 5 ECFs in MMM in the Free State Province of South Africa. A population of 2529 grade 1 to 5 registered ECFs in MMM were identified from the CIDB website. The CIDB is mandated to promote regulatory and developmental framework in the construction industry. The CIDB is also responsible for registering and developing the capacity and capabilities of ECFs in the country. All grade 1 to 5 registered ECFs in the CIDB database that fall under MMM therefore served as the target population from which a sample was drawn.

1.8.4 Sampling

Sampling technique and sample size are the key sampling issues in research (Neuman, 2011:240). A sample size of 334 was calculated for the target population of 2529 by the use of an internet-based sample size calculator (http://www.macorr.com/sample-size-calculator.htm). Confidence level of 95% and confidence interval of 5% were considered in calculating the sample size. Simple random sampling, which lies at the heart of all scientific research (Davies, 2007:58), was used as the sampling technique in the research process.

1.9 DATA COLLECTION

Four main ways of gathering quantitative data are interviews, questionnaires, test/measures and observation (Thorpe & Easterby-Smith, 2004:130). The researcher

adopted a structured questionnaire for this survey. The questionnaire was constructed after a thorough literature review. Being a self-constructed questionnaire, a pre-test was conducted on a randomly-selected sample of 20 ECFs to test user-friendliness.

1.10 ASSURING CREDIBILITY OF THE STUDY

Kumar (2011:177) maintains that the credibility, appropriateness and quality of the research is enhanced through questionnaire validity and reliability.

1.10.1 Assuring validity

The validity of a measurement instrument is the extent to which the instrument measures what it is intended to measure (Leedy & Ormrod, 2010:28). Four types of validity are identified by Leedy and Ormrod (2010:92): face validity, content validity, criterion validity and construct validity. Construct validity and content relate to this study.

1.10.1.1 Construct validity

Bernard (2013:49) argues that a measurement instrument is said to exhibit high construct validity if a close fit exists between the construct being (supposedly) measured and the actual observations made with the instrument. To ensure construct validity, intense review of literature related to the study was done. The review led to the theoretical and operational definitions of the variables in the study and also to the development of the questionnaire (Babbie, 2013:192).

1.10.1.2 Content validity

Leedy and Ormrod (2010:92) and Cooper and Schindler (2008:290) define content validity as the extent to which a measurement instrument provides adequate coverage of the research questions guiding the study. Cooper and Schindler (2008) suggest the following procedures of ensuring content validity of a measurement instrument:

- One must first agree on what elements constitute adequate coverage.

- Careful definition of the topic, the items to be scaled and the scale to be used.
- The use of a panel of persons to judge how well the instrument meets the standard.
- The content should not be narrowly defined.

In order to ensure content validity of the instrument, review of literature related to the study was done. The review enabled the researcher to develop operational definitions and clear understanding of the topic in relation to ECFs and formal project management adoption readiness. The opinion and guidance of the research supervisor was sought in order to finalize the development of the measurement instrument.

1.10.2 Assuring reliability

Generally, reliability in social research is concerned with the consistency with which the measurement instrument measures what it intends to measure. Cooper and Schindler (2008:288) identify situational factors, respondent factors, the measurer and the instrument as sources that compromise instrument reliability. Attempts were made to counter these challenges (see Section 4.8.2 for fuller discussion).

1.11 DATA ANALYSIS

Data analysis and interpretation were conducted using both descriptive and inferential statistics. Descriptive statistics were used to describe characteristics of the study subjects (Neuman, 2011:386) while inferential statistics were used to make judgments based on the sample data collected (Neuman, 2011:412). The data analysis was conducted using *R* software version 3.3.1. Details of the descriptive and inferential statistics adopted in the study are presented in Chapter 4.

1.12 ETHICAL CONSIDERATIONS

Ethics comprises the norms or standards of behaviour that guide moral choices of people in relationship with other people (Cooper & Schindler, 2011:32). In research, balance has to be struck between the pursuit of scientific knowledge which could be

beneficial to society and the rights of those being studied; no harm should come to anybody involved in the research activities and no one must be forced to participate; the purpose and benefits of the study must be explained to the respondents; participant rights being communicated to them; and informed consent of participants must be obtained (Neuman, 2011:143). In addition, voluntary participation is a key ethical issue in social research (Andres, 2012:91). Efforts were made to ensure voluntary participation in this research (see Section 4.10).

1.13 LIMITATIONS

Research of all types, no matter the techniques and the approach adopted, is not devoid of shortfalls. As such, a number of factors constrained this research project. The first limitation is that the study was limited to only registered ECFs in MMM in the province, even though there were many other ECFs in other parts of the province as well as the country. Therefore, the findings might not be generalised to all ECFs in the province nor the country as a whole. However, the choice of simple random sampling should increase representativeness hence generalizability (Sekaran & Bougie, 2013:256).

1.14 STRUCTURE OF THE DISSERTATION

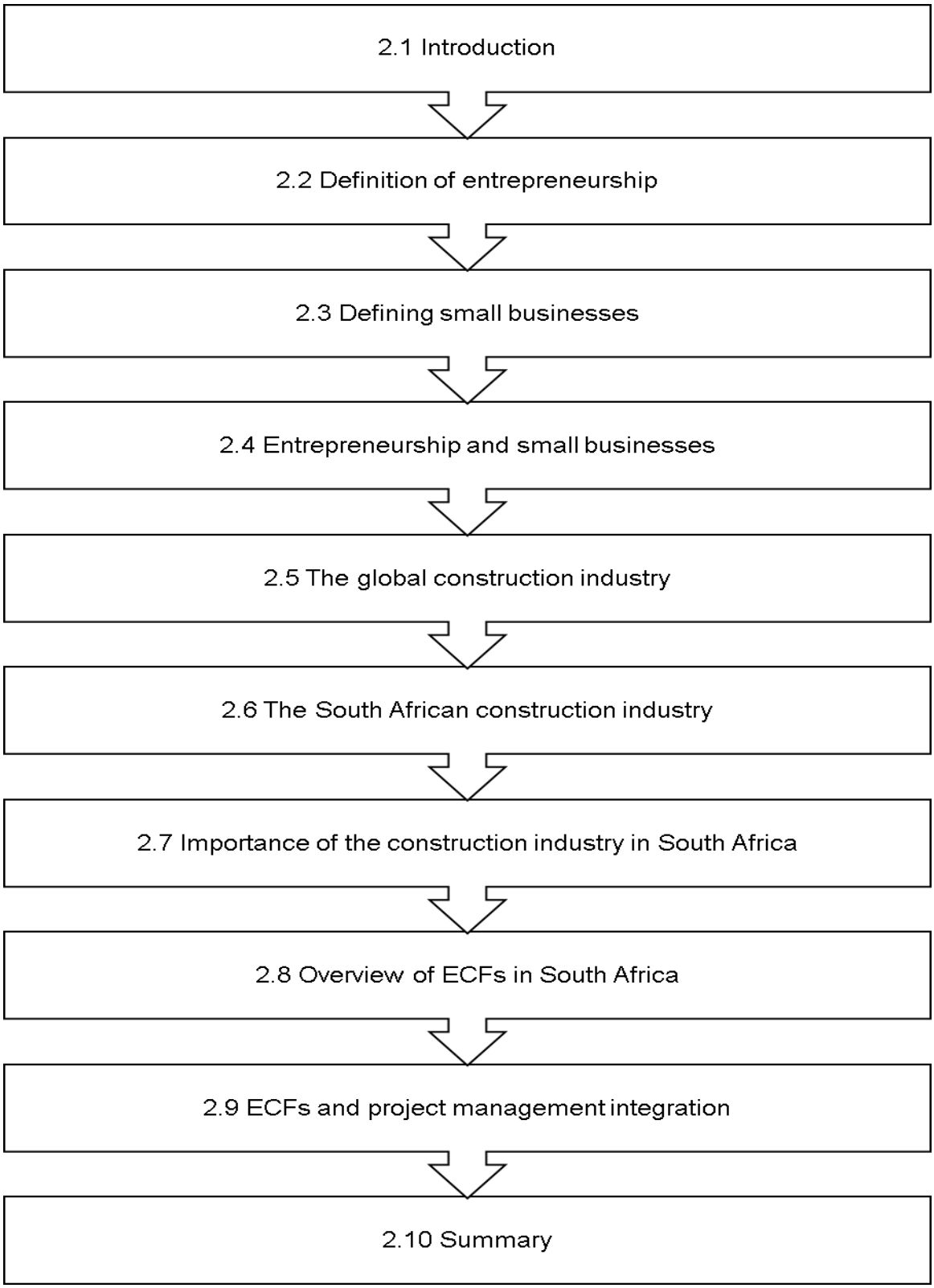
- **Chapter 1** - this section presents the general introduction and background of the study. It includes, problem statement, research questions, aims and objectives of the study.
- **Chapter 2** - deals with entrepreneurship, small business, general construction and the emerging construction industry.
- **Chapter 3** - discusses the role of project management, entrepreneurship and small business issues as they pertain to the emerging construction industry.
- **Chapter 4** - presents the methodology applied to the study.
- **Chapter 5** - is dedicated to the presentation and discussion of the results of the study.
- **Chapter 6** - deals with the conclusions and recommendation for practice, policy and directions for future research.

1.15 SUMMARY

This chapter provided a general introduction to the study by focusing on the context of the investigation, the research problem, the research questions, methodology, the contribution of the study and ethical issues affecting the study. The next chapter reviews the related literature.

CHAPTER 2: ENTREPRENEURSHIP, SMALL BUSINESS AND EMERGING CONSTRUCTION FIRMS

Chapter outline



2.1 INTRODUCTION

As stated previously in Chapter 1, the aim of the study is to explore formal project management adoption readiness of Emerging Construction Firms (ECFs) in MMM. This chapter reviews literature on entrepreneurship, small business and ECFs. The review of the relevant literature is done in the global and South African contexts.

The chapter is outlined as follows. The chapter begins with a general introduction. This is followed by definition of entrepreneurship and small businesses. The review subsequently focussed on entrepreneurship and small business highlighting their importance relevant to job creation, economic growth and innovation generation. A global as well as the South African perspectives on the construction industry were covered in the following section. The focus of the chapter then turned to the introduction of emerging construction firms in South Africa, their characteristics, importance as well as the problems they have to contend with. The chapter closes with a summary.

2.2 DEFINITION OF ENTREPRENEURSHIP

ECFs may be considered entrepreneurial if they exhibit certain entrepreneurial characteristics. Therefore, there is a need to define entrepreneurship in order to relate it to ECFs. Consistent with this assumption, entrepreneurship is defined below.

The definition of entrepreneurship is heavily contested in mainstream literature (Sahay & Sharma, 2008:2; Stoke & Wilson, 2010:4; Botha, et al., 2013:3; Van Aardt, et al., 2014:7). Venter, Urban and Rwigema (2008:5) state that the key elements of the adopted definitions have chiefly emphasised the creation of new ventures, and growing ventures for long term profitability.

Kuratko (2014:5) defines entrepreneurship as a dynamic process of vision, change and creation, which requires application and passion towards the creation and implementation of new ideas and creative solutions. Kuratko (2014) elaborates that

the objective of entrepreneurship is to remain innovative, profitable and growth-oriented for the process to be successful certain essential attributes need to be available. These attributes include the willingness to take calculated risk, ability to formulate an effective venture team, the creative skill to marshal needed resources, the fundamental skill of building a solid business plan and the vision to recognise opportunity (Kuratko, 2014:5). From the above, it could be inferred that the prerequisites for successful new venture creation are innovativeness, drive for profit, calculated risk taking, growth orientation and vision.

Schaper and Volery (2004:6) see entrepreneurship as a process where individuals identify new entrepreneurial opportunities and convert them into marketable products and services. Similarly, Barringer and Ireland (2008:6) consider entrepreneurship as the process whereby an individual pursues new opportunities without regard to resources s/he currently controls. In addition, Barringer and Ireland (2008:6) state that the purpose of the entrepreneurial behaviour of an individual is to identify new opportunities and put useful ideas into practice. Whilst the two definitions highlight the importance of new opportunity identification and its subsequent exploitation to create new products or services, the definitions do not consider however, the long-term profitability and growth dimensions of the ensuing ventures, usually regarded as critical ingredients of entrepreneurship.

Van Aardt, et al. (2011:4) and Venter, et al. (2008:9) consider entrepreneurship to be concerned with innovation, potential for growth, long term financial gain and strategic intent in the creation and management of a venture of any size. Whiles Van Aardt, et al.'s (2011) definition stresses innovation, growth, long term financial gain and strategic intent as essential characteristics of entrepreneurship, it fails to highlight the process of opportunity identification and exploitation. The researcher therefore views these definitions of entrepreneurship incomplete.

Burke (2014:22) defines entrepreneurship as the business aspect of creating new ventures by exhibiting a number of entrepreneurship attributes, which include

opportunity identification and exploitation, creativity and innovation, taking calculated risks, passion and enthusiasm, and determination and persistence. Although Burke's (2014) definition includes all the attributes needed in the creation of a new venture, the definition is silent on the consideration of long-term profitability and growth of new ventures.

Global Entrepreneurship Monitor (GEM) report considers entrepreneurship as any attempt at new business or new venture creation such as self-employment, and a new business organisation (Amorós & Bosma, 2014). (Amorós and Bosma, 2014) adds the expansion of an existing business by an individual, a team of individuals or an established business as an extension of the entrepreneurship definition. This researcher argues that the expansion of an existing business constitutes entrepreneurship since it involves the application of entrepreneurial attributes. It is contended that for a small business owner to decide to extend an existing business to other branches, all the entrepreneurial attributes, such as opportunity identification, opportunity exploitation, calculated risk taking, gathering of resources among others must be considered (Burke, 2014:22). In addition, business extension could be construed as a manifestation of growth or strategic orientation aimed at seeking long-term profitability (Venter, et al., 2008:9; Kuratko, 2014:17). Timmons and Spinelli (2007:88), in a model often referred to as the Timmons model (Figure 2.1), vividly captured the entrepreneurial process. The Timmons model presents the entrepreneurial process in terms of opportunity identification, gathering of the necessary resources and assembling the right mix of team to seize the opportunity. In addition, the entrepreneurial process must take into consideration balance and fit within the opportunity, resources and the team (Timmons & Spinelli, 2007:89).

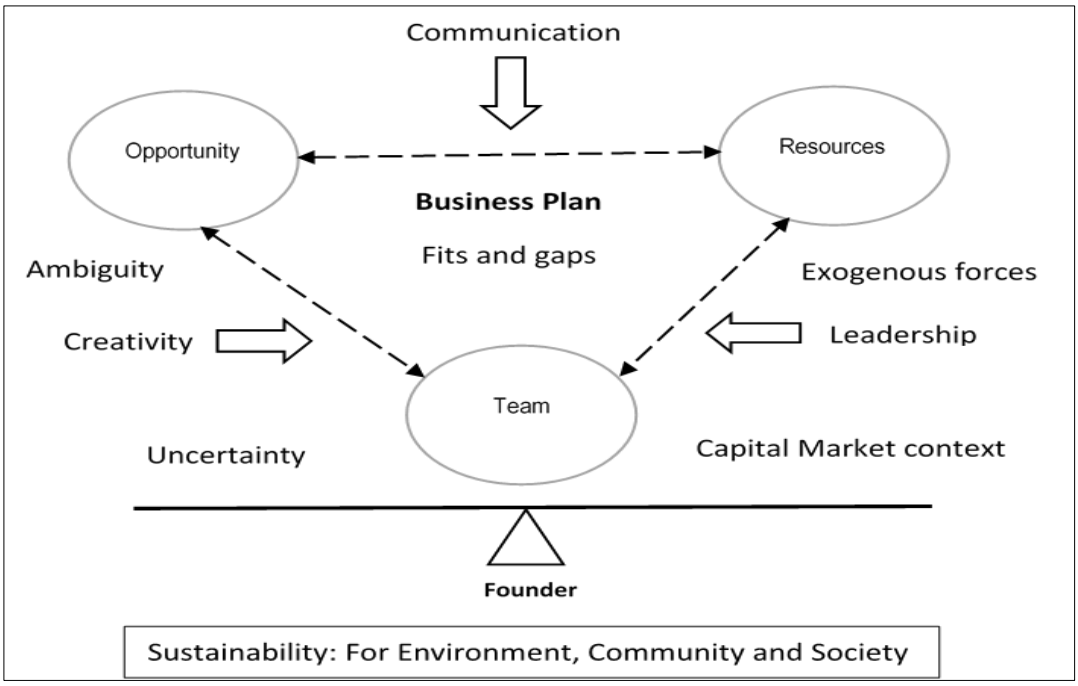


Figure 2.1: The Timmons model of entrepreneurial process

Adapted from Timmons and Spinelli (2007:93)

The definitions above highlight entrepreneurship as a process of creating new ventures through identification of new opportunities and their exploitation for the creation of marketable products and services considered beneficial to society. What is highlighted is the creation, management of those ventures for long-term growth and profitability. This implies that for a venture (ECFs) to be considered entrepreneurial it should encompass the entrepreneurial process while the owner exhibits entrepreneurial characteristics. Entrepreneurship for this study is therefore defined as the process of identifying and exploiting new opportunities in an environment with the intention of creating and managing a new venture for long term growth and profitability. This is done by exhibiting attributes such as calculated risk taking, creativity and innovativeness in marshalling the needed resources, ability to formulate an effective venture team, the fundamental skill to develop a business plan and the vision to recognise new opportunities continuously.

As noted by Venter, et al. (2008:7) entrepreneurship is a function of an entrepreneur, implying entrepreneurship could hardly exist without entrepreneurs. It is therefore necessary to define an entrepreneur.

Kuratko (2014:3) defines an entrepreneur as an individual who recognizes opportunities where others only see chaos and confusion. Such an individual is an aggressive catalyst for change within the marketplace. Scarborough, Wilson and Zimmerer (2009:21) see an entrepreneur as a person who creates a new business in the face of risk and uncertainty for the purpose of achieving profit and growth, by identifying opportunities and assembling the necessary resources to capitalise on those opportunities. For Botha et al. (2013:31), an entrepreneur is that key human element that combines resources in order to produce a good or service, or start a new business. Botha, et al. (2013:31) further posit that as agent of economic activity, an entrepreneur is a risk-taker. From the definition above it can be inferred that without an entrepreneur, there can hardly be entrepreneurship. Therefore, for entrepreneurship to take root and be effective there has to be that human element that can spot new opportunities and able to harness the needed resources in exploiting them. In addition, for the person to be able to exploit the opportunities to his/her advantage, the person must be a calculated risk-taker. Furthermore, it can also be deduced from the definitions that an entrepreneur is someone who gets involved in all these activities for financial and economic gain. Consistent with the above review, owners of ECFs could therefore be considered entrepreneurs, and their activities as entrepreneurial if they exhibit the characteristics highlighted above. By their nature, ECFs are mostly small businesses. Therefore, the definitions of a small business are considered below in order to put ECFs in that context.

2.3 DEFINING SMALL BUSINESSES

There is hardly a universal definition of what constitutes small business, as there exists a plethora of connotations of the term.

For example, Hatten (2012:4) defines small business as an independently owned, operated and financed business which employs fewer than 100 people and has relatively little impact on its industry. Similarly, Burke (2006:13) defines a small business as an independent business managed by its owner or part-owners with a small market share.

Urban, et al. (2015:14) indicate that if small businesses are concerned only with the management of an existing business or a start-up, their businesses are limited in scope, and are not necessarily new. Furthermore, small businesses that do not operate diverse set of product lines and are also not engaged in innovative practices.

Stoke and Wilson (2010:4) define small business based on quantitative and non-quantitative categories. The quantitative definition is based on head count, turnover, and balance sheet value, which are considered the numerical dimensions of small business. The non-quantitative definition on the other hand is based on such aspects as market share, independence in terms of ownership, and business operations (Stoke and Wilson, 2010:4). The next section explores various definitions of small businesses in selected countries. The definitional exploration commences with the USA, EU, Malaysia, India, and concludes with the South African conceptualisation of small business.

2.3.1 Definition of small business

In this section, definitions of small business from various countries including South Africa are explored. This is to enable the researcher to review elements of this definition, and also identify possible reasons as well as the objectives of the classifications that are included in these definitions. The review of the definitions starts with the USA, followed by other countries, and concludes with South Africa.

2.3.1.1 Definition of small businesses in the United States of America

In the United State of America (USA), the Small Business Administration (SBA) uses numerical determinants to define small businesses. The SBA (2015) explains that small businesses employ a maximum of 500 persons and are independently owned. The definition further mentioned that the business must not be nationally dominant in its field of operation. The SBA (2015) highlight that the classification of small businesses is relevant in determining the qualification of the business to receive special financial assistance from the government.

2.3.1.2 Definition of small businesses in the European Union

The definition of small businesses in the European Union (EU) take into consideration the quantitative dimension where businesses are classified based on number of employees, turnover or balance sheet total (European Commission [EC], 2003). EU considers small businesses as Small, Micro, and Medium sized Enterprises (SMMEs) (EC, 2003). The EU considers SMMEs as enterprises that employ fewer than 250 persons and have annual turnover not exceeding €50 million or a balance sheet total not exceeding €43 million. Moreover, within the SMMEs category, a small enterprise is defined as an enterprise that employs fewer than 50 persons and whose annual turnover or annual balance sheet total does not exceed €10 million. In addition, micros enterprise within the SMMEs category is defined to be an enterprise that employs fewer than 10 persons and have annual turnover or annual balance sheet total not exceeding €2 million. The EC (2003) mentioned that this classification is for policy purposes, which enables the classified SMMEs to have access to loans for business operations. The EU classification of SMEs is shown in Table 2.1.

Table 2.1. The EU small business classification

Category	Headcount	Turnover (or)	Balance Sheet total
Medium	20-249	<€50m	<€43m
Small	10-49	<€10m	<€10m
Micro	0-9	<€2m	<€2m

Source: European Commission (Stoke & Wilson, 2010: 4)

2.3.1.3 Definition of small businesses in Malaysia

In Malaysia a new definition for SMMEs was adopted in 2013 to take care of price inflation, structural changes and changes in business trends. The new definition now classified SMMEs based on their sector of operation. Sectors include manufacturing, services and other sectors. In the various sectors of operations, the SMMEs are further classified based on the sales turnover and full time employees (see Table 2.2) (SME Corp, 2015).

Table 2.2. SMME classification in Malaysia

Category	Small	Medium
Manufacturing	Sales turnover from RM300,000 to less than RM15 million OR full-time employees from 5 to less than 75	Sales turnover from RM15 million to not exceeding RM50 million OR full-time employees from 75 to not exceeding 200
Services and Other services	Sales turnover from RM300,000 to less than RM3 million OR full-time employees from 5 to less than 30	Sales turnover from RM3 million to not exceeding RM20 million OR full-time employees from 30 to not exceeding 75

Source: SME Corp (2015)

The National SME Development Council (NSDC) indicates that these classifications are for offering financial assistance to SMMEs. Therefore, the business will be deemed SMME and offered the government financial assistance if it meets the criteria as described in Table 2.2 (SME Corp, 2015).

2.3.1.4 Definition of small businesses in India

In India, Micro, Small, and Medium Enterprises Development (MSMED) Act of 2006 classifies SMMEs into two categories, which are manufacturing and services enterprises. These two categories are further classified according the amount of money invested into the enterprise in terms of machinery, plants, and equipment (see Table 2.3) (MSMED Act of 2006).

Table 2.3: Classification of MSME in India

Category	Micro	Small	Medium
Manufacturing Enterprise	Investment in plant and machinery does not exceed 25 lakh (2.5 million) rupees	Investment in plant and machinery is more than 25 lakh (2.5 million) rupees but does not exceed 5 crore (50 million) rupees	Investment in plant and machinery is more than 5 crore (50 million) rupees but does not exceed 10 crore (100 million) rupees
Services Enterprise	Investment in equipment does not exceed 10 lakh (1 million) rupees	Investment in equipment is more than 10 lakh (1 million) rupees but does not exceed 2 crore (20 million) rupees	Investment in equipment is more than 2 crore (20 million) rupees but does not exceed 5 crore (50 million) rupees

Source: MSMED Act (2006)

2.3.1.5 Definition of small businesses in South Africa

In South Africa, a small business is considered as a separate and distinct business entity which is managed by one or more owners and operates in any sector of the economy (National Small Business Act [NSBA], 102 of 1996 as Amended in 2004). Small businesses are further classified as micro, very small, small, and medium

enterprises (SMMEs) based on specified criteria prescribed by the NSBA Act. The classification criteria contained in the Act include number of employees, total annual turnover and total gross asset. Based on head count, a small business in South Africa is generally considered to have a maximum of 200 employees (NSBA, 102 of 1996, Amended 2004). However, the maximum number 200 employees do not apply to all industries. Industries such as Agriculture, wholesale trade, Retail and motor trade and other services are indicated by the act to have maximum of 100 employees (NSBA, 102 of 1996, Amended 2004). The South African definition of small business as stated above could be said to confirm Stoke and Wilson's (2010:4) assertion that the definitions of small business do not conform to any neat parameter but are made up of quantitative and non-quantitative components. For Stoke and Wilson (2010:4), these components are the most distinctive way to define a small business. Activities of ECFs which are notably in the construction industry can be consider to be small business which fall under the construction industry category of the SMMEs classification of South Africa if they exhibit the parameters used in the definition. Table 2.4 depict SMMEs classification according to NSBA in South Africa.

Table 2.4: NSBA's classification of SMMEs in South Africa

Enterprise Size	Number of Employees	Annual Turnover	Gross Assets excluding fixed property
Medium	Less than 100 to 200 depending on industry	Less than R4 million to R50 million depending on industry	Less than R2million to R18 million depending on industry
Small	Less than 50	Less than R2 million to R25 million depending on industry	Less than R2 million to R4.5million depending on industry
Very Small	Less than 10 to 20	Less than R200 000 to R500 00 depending on industry	Less than R 150 00 to R 500 00 depending on industry
Micro	Less than 5	Less than R150 000	Less than R100 000

Source: NSBA, 102 of 1996 Amended 2004.

It is clear from the definitions above that countries define SMMEs differently. However, all the definitions highlight the quantitative criteria for defining small businesses. Most countries use the classifications for the purposes of offering the SMMEs governmental financial assistance in their business operation. It can therefore be concluded that SMMEs are of interest to most governments globally which could be attributed to the role they can play in the economic develop and growth of the individual countries. Based on the above presentation, ECFs in South Africa are considered small businesses. However, the classification is dependent of the number of employees and annual turnover at the time. Thus, ECFs in South Africa could be considered as micro, very small, small or medium.

Although this is not the prime focus of this study, a brief distinction between the concepts of entrepreneurship and small businesses is necessary to clarify confusions that often arise regarding these two concepts.

2.4 ENTREPRENEURSHIP AND SMALL BUSINESSES

In mainstream literature, entrepreneurship is considered the driver of the creation of new ventures, especially small businesses (Venter, et al., 2008:5; Stoke & Wilson, 2010:31; Botha, et al., 2013:17). Small businesses are therefore considered direct consequences of entrepreneurial activity (Venter, et al 2008:8; Van Aardt, et al., 2011; Botha, et al., 2013:17) although not all new venture start-ups can be regarded as small businesses (Venter, et al., 2011:8; Botha, et al., 2013).

Some authors (Stoke & Wilson, 2010:4; Kuratko, 2014:3) have depicted entrepreneurship and small business as identical. However, authors including Kuratko (2014:3), Venter, et al. (2009:8) and Botha, et al., (2013:17) concur that entrepreneurial ventures exhibit certain characteristics that differentiate them from small businesses. These authors differentiate entrepreneurial ventures from small businesses based on innovation, growth and long-term profitability, among other characteristics. Yet Burke (2014:23) contradicts this convention by contending that some small businesses can be considered as entrepreneurial since their owners still

exhibit entrepreneurial attributes that keep their businesses active for extended durations.

From this brief discussion it is inferred that although small businesses are consequence of entrepreneurial activity, not all small businesses are entrepreneurial in nature and orientation. ECFs in this case could therefore only be considered entrepreneurial if they exhibit the characteristics that are identified with entrepreneurial businesses even though they might have been consequence of entrepreneurial activity from the start.

2.4.1 Importance of entrepreneurship and small business

Generally, entrepreneurship and small businesses are considered as key to job creation, economic growth and development of society (Botha, et al., 2013:33; Stoke & Wilson, 2010:3; Burke, 2006:14). This is because it is believed that without entrepreneurship there can hardly be any job creation, economic growth and development of in a society (Stoke & Wilson, 2010:3; Botha, et al., 2013:3).

The importance of entrepreneurship and small business in any economy can be classified at the macro level to include creation of employment opportunities, generation of economic growth and innovation and the stimulation at the market level (Venter, et al., 2008:19; Scarborough, Wilson & Zimmerer 2009:30; Botha, et al., 2013:42; Van Aardt, et al., 2014:7). Therefore, it is anticipated that ECFs, which are considered small businesses in South Africa, should be able to create employment opportunities, and enhance economic growth and innovation within the environments in which they operate.

2.4.1.1 Creation of employment

It is known that larger firms are no longer the main sources of employment in major economies worldwide, since most of them are restructuring, downsizing and rightsizing in response to economic and market shakeups (Sahay & Sharma, 2008:6;

Scarborough, Wilson & Zimmerer, 2009:19; Botha, et al., 2013:42). Small firms are now in the forefront of the creation of employment in most countries in the world (Sahay & Sharma, 2008:6; Scarborough et al., 2009:19; Stoke & Wilson, 2010:7; Botha, et al., 2013:42).

In the United Kingdom (UK) for instance, small and medium enterprises reported employing 14,424,000 people in 2013 (Ward & Rhodes, 2014:1). In the United States (US) it is believe that small businesses create newest jobs (Edmiston, 2007:77). In the US, small businesses accounted for 48.4 % of the total employment within the economy in 2012 (Caruso, 2015:2). In addition, small businesses represent 99.7 % of US businesses with employees, and employ 56 million of the nation's private sector workforce (Small Business Administration office of Advocacy, 2015). The SMME Census conducted by Department of Statistics, Malaysia, indicates that SMMEs account for 77.7% of full time employees in 2011.

In South Africa, small businesses created 11.605 million employment opportunities in 2010 (FinScope, 2010:15). However, FinScope (2010:15) indicate that 67 % of small businesses created employment only for the owners, while 27 % created employment opportunity for one to four individuals in addition to the owners. Apart from creating jobs, Scarborough et al. (2009:44) indicated that small businesses provided 67 % of workers with their first jobs and basic training.

In the South African context, ECFs could be considered as part of the employment creation figures by small businesses since ECFs are considered as small businesses. For instance, 62.7% of employment created in the construction industry in 2014 was by small businesses (Stats SA, 2016a). However, it is important to note that ECFs operate mainly in the construction industry of the country. It should be also noted that even in cases where the business created employment only for the owner, it could still lead to alleviation of poverty while also promoting income generation for the owner. Based on these observations, it could be concluded that small businesses are key in employment creation in the economy of countries worldwide.

2.4.1.2 Generation of economic growth

Economic growth is considered to be reflected in the real annual growth of a country's GDP (Botha, et al., 2013:44). It is widely reported that there is a link between the economic growth of a country and its entrepreneurial activities (Venter, et al, 2008:20; Stoke & Wilson, 2010:7; Botha, et al., 2013:45). GDP is the measure of the total output of an economy (Stoke & Wilson, 2010:15). Therefore, with the current observation of entrepreneurs and small businesses as the key to economic growth, their contribution to GDP is considered in determining the GDP of an economy.

In the UK, where majority of the small businesses operate in the service and construction sector, the service sector is reported to contribute 70 % to the country's GDP (Stoke & Wilson, 2010:15). The US considers the role of small business in the economy of the country as vital, and its contribution to the country's GDP is widely reported. For instance, small businesses produced 46 % of the private nonfarm GDP in 2008 (Kobe, 2012). In Malaysia, a census of establishments and enterprises conducted by Department of Statistics in 2005 indicate that SMMEs contribute 32 % of the GDP. In South Africa, University of Cape Graduate School of Business (UCTGSB) indicated that SMMEs contributed more than 45 % of the country's total GDP (UCTGSB, 2012). However, the review of small businesses conducted by Department of Trade and Industry (DTI) for the period 2005 to 2007 in South Africa indicate that small businesses accounted for 27 % to 34 % of the country's total GDP (The DTI, 2008).

These values include the contribution of ECFs, since these businesses are considered small businesses in South Africa, even though their activities are mainly in the construction industry. It can be inferred that the contribution of small businesses, including ECFs, to the economic growth of the country in terms of GDP has increased over the years. Taking into consideration figures from other parts of the world as reviewed above, it can be argued that small businesses are key to the economic growth of many countries.

2.4.1.3 Generation of innovation

Stoke and Wilson (2010:104) and Sahay and Sharma (2008:99) see innovation as the successful exploitation of new ideas into a useful product or service. Even though the term innovation and creativity are sometimes used interchangeably, Stoke and Wilson (2010:104) mention that for small business management and entrepreneurship purposes it is helpful to differentiate them.

While innovation is considered successful exploitation of a new idea, creativity is the process of generating the new idea (Stoke & Wilson, 2010:14). Innovation is considered by Venter, et al. (2008:63) as a better way of doing something new that is commercialised in the market. Venter, et al. (2008) further indicated that innovation is built on creativity. Van Aardt, et al. (2014:6) and Timmons and Spinelli (2007:55) concede that innovation and creativity are key parts of entrepreneurship, but refute the claim that both concepts are the same or similar. However, Van Aardt, et al. (2014:7) mention that the concepts *entrepreneurship* and *innovation* cannot be separated from each other since without entrepreneurship there cannot be innovation and without innovation there cannot be entrepreneurship.

The concept of innovation and its effect on society has been widely reported, and most economies in the world benefit from the combination of entrepreneurship and innovation. For instance, Kuratko (2016:67) identifies two types of innovation, which are assumed to aid in advancing the entrepreneurial process of any organisation. These are radical and incremental innovations. Kuratko (2016:67) and Rwigema, et al. (2008:64) indicate radical innovation to be dramatic breakthrough in a product idea or process reorganisation, whereas incremental innovation is a gradual and systematic evolution of a product or service into a newer or larger market. In addition, Kuratko (2016) and Rwigema, et al. (2008) posit that incremental innovation usually occurs after a radical innovation in order to help consolidate and keep to the innovation ahead of competitors.

Even though Rwigema, et al. (2008) argue that radical innovation occurs sometimes accidentally, efforts should be made to plan and execute innovations properly since entrepreneurs cannot rely on pleasant surprises. Companies like Apple, Google, Microsoft, and Mary Kay among many others who started as small business through either radical or incremental innovations, and entrepreneurship have contributed significantly to their industries and operation (Sahay & Sharma, 2008:98).

In the US for instance, one of the leading economies of the world, innovation is considered as the bedrock of its development. Example can be made of the Silicon Valley project which is considered the home of many hi-technology start-ups as well as global technology companies such as Facebook, Apple, Google and many others (Wikipedia, 2016). These innovations have benefited the American society and individuals as well as the world at large by increasing prosperity and quality life (Harrison, 2015).

Although larger companies and the federal government were noted as playing key roles in the innovation success story of the US, Harrison (2015) indicated that the story was not complete without the significant role of individuals, entrepreneur and small businesses. In addition, Timmons and Spinelli (2007:55) conceded that small entrepreneurial firms were responsible for 95 % of all radical innovations as well as half the innovations in the United States.

In the United Kingdom, enterprises that employ from 10 to 249 persons developed 43 % of innovations considered as arising from *broader innovators* (Department for Business, Innovation & Skills [DBIS], 2012). Broader innovators are considered to include the introduction of new or significantly improved product or process. In addition, it also includes engagement in innovative projects that are not yet completed or are abandoned. Furthermore, broader innovators are involved in new and significantly improved form of organisation, business structures or practices and marketing concepts or strategies as well as activities in areas such as internal

research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities (DBIS, 2012).

In India, SMMEs contributed 17 % of the national innovation output in the period under review (Federation of Indian Chamber of Commerce and Industry [FICCI], 2012). This could be considered a very low percentage when compared to that of larger enterprises, which contributed 42% of the national innovation output within the same period (FICCI, 2012). However, with India's population being the second largest in the world, this percentage could be assumed to be very large if compared with other smaller countries. Furthermore, with innovation and entrepreneurship being related, the 42% contribution to the national innovation output could also indicate entrepreneurial activity within the same period.

In South Africa, through innovation, the bus boycotts during the apartheid led to the establishment of minibus taxi businesses, which is currently considered to be a multi-billion-rand industry (Botha, et al., 2013:91). In case of ECFs, their contribution to the generation of innovation could be considered in their adoption and use of project management techniques and tools in successfully managing their projects. This is possible because innovation is considered to thrive in environment where individuals are given freedom and encouragement to develop their ideas (Kuratko, 2014:66). Therefore, taking into consideration the nature of ECFs, which are mainly owned and operated by one person, the chances of being innovative could be higher. In addition, Longenecker, et al. (2012:22) argue that small business such as ECFs do not necessarily have to create the technology or the services, to be able to innovate with it. The researcher therefore believes that ECFs could be able to use the existing project management techniques and tools as radical or incremental processes of innovating to deliver their project activities successfully, thereby helping them achieve their business goals of making profit.

2.5 THE GLOBAL CONSTRUCTION INDUSTRY

The construction industry has continued to draw the attention of both governments and practitioners all around the world (Hills, et al., 2008). The industry is responsible for the building of new houses, apartments, factories, offices and schools. Furthermore, the industry builds bridges, sewerage systems, roads, ports, railways and tunnels, among many other things. The industry is also responsible for the repair of the structures they have built as mentioned above (Beckett, 2008c). The construction industry is therefore seen by most governments and practitioners as the engine of sustainable economic growth and infrastructure development (Tshivhase & Worku, 2012:268).

Despite the potential of the industry to drive the sustainable economic growth and infrastructure development of countries around the world, the industry is noted to be fraught with lots of problems and deficiencies. Based on the concerns, many players in the industry agitate for performance improvement in the industry (Hill, et al., 2008).

The construction industry can generally be seen to continuously contributing to the infrastructure development of every country in the world. Even during recession periods and the growth periods, countries continue to undertake construction projects. These projects are directed at the development of the individual countries. These observations have highlighted the role of the industry as the engine of economic growth and job creation.

In the United States for instance, total construction expenditure for the first three months of 2015 was reported to be 3.2 % higher than what was spent in the same period of 2014 (United State Department of Commerce, 2015). In addition, the US Department of Commerce also reported construction spending during March 2015 to be estimated at $966.6 billion, which is 0.65 % below the revised estimate for February 2015. However, the March 2015 figure is 2 % above the figure of March 2014 estimate of $947.3 billion. In terms of GDP, the construction industry contributed 0.15 % to the total 4.6 % GDP of the total US GDP in the second quarter of 2014. This observation

indicates the importance of the construction industry the economy of US. Although this could be considered minimal when compared to other industries such as durable manufacturing (0.51 %), Insurance and Finance (0.42 %) and Wholesale trade (0.28 %) (Howells & Morgan, 2014).

In the UK, the construction industry is reported to currently account for 6.4 % of UK GDP, this is also made up of the activities of SMMEs in the construction industry (United Kingdom office for National Statistics, 2015). It is reported that by the start of 2014 there were about 950,000 SMMEs operating in the construction industry, representing 18 % of all SMMEs in the private sector in the UK (Department for Business Innovations and Skills, 2014).

The construction industry is reported to be the second largest employer and contributor to economic activity in India after agriculture. The industry is also reported to account for the second highest inflow of Foreign Direct Investment (FDI) after the service sector. The construction industry employs 35 million people (makeinindia.com, 2015). The construction industry is also reported to account for 10 % of India's GDP (makeinindia.com, 2015). The industry also benefits from $1 trillion in investments for infrastructure development for the period from 2012 to 2017 (makeinindia.com, 2015).

Based on the above observations, it could be inferred that the construction industry is a key player in the economic development and growth of countries worldwide. The construction industry is also a contributor to employment. Therefore, the industry could be effectively used to empower individuals economically.

2.6 THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

The construction industry in South Africa, as is the industry in many other parts of the world, is considered as a significant contributor to employment and growth of the country (Pricewaterhouse Cooper [PwC], 2015:3). The construction industry in South Africa witnessed massive boost in construction activities leading to the hosting of the

FIFA World Cup in 2010. For instance, the South African government's total expenditure on the construction of stadia and other infrastructural developments in the various host cities was reported to be around R13.5 billion (Sports and Recreation South Africa, 2013). However, the construction industry in South Africa has been indicated to be in slump since the 2010 World Cup projects (PwC, 2015:3). It is also further reported that the construction industry has not be able to recover since the industry is frequently fraught with strikes and labour unrest, which includes both clients and suppliers (PwC, 2015:3). Even though these aforementioned situations affect the delivery of significant projects within the country, the government's plan of fulfilling the infrastructure deficit of the country requires the use of the construction industry (PwC, 2015:3). In addition, the construction industry is used by the South African government as its main instrument for economically empowering individuals from previously disadvantaged population groups (BBBEE Act 53 of 2003).

Furthermore, the South African government is reported to be the biggest client of the construction industry (Ncwadi & Dangalazan, 2006:186). In order for the government to derive the full benefit from the construction industry, the CIDB was instituted in 2000 with the passing of the CIDB Act 38 of 2000. This Act mandates CIDB to lead stakeholders in construction industry development and growth within the country (CIDB Act 38 of 2000).

2.7 IMPORTANCE OF THE CONSTRUCTION INDUSTRY IN SOUTH AFRICA

The importance of the construction industry to the economy of South Africa in terms of employment generation and economic growth is widely noted in reports and literature (Ncwadi & Dangalazan, 2006:186; Ramokolo & Smallwood, 2008:46; PwC, 2015:3). This importance is evident by continuous government expenditure in the industry, even though the industry is reported to be struggling (PwC, 2015:3). For instance, a sum of R847 billion was invested in the construction industry by way of public expenditure on infrastructure development in 2014. This is supposed to continue over the next few years in line with governments National Development Plan (NDP) strategy (PwC, 2015). In addition, Ncwadi and Dangalazan (2006:186) reported that 40 % to 50 % of all government domestic expenditure is directed towards the

construction industry. In addition, government total capital expenditure on new constructions in 2015 increased by 51% when compared with 2014 figure (Stat SA, 2016c).

As previously mentioned, the industry contributes to employment creation and economic growth of the South African economy. For instance, the CIDB (2015:2) reported that since 2008 the construction industry has contributed 9 % to the Gross Domestic Product (GDP) of the South African economy. GDP is an indicator which is used to measure economic growth of a country. In terms of employment, the construction industry employs individuals both in the formal and informal sectors of the country (Quarterly Labour Force Survey, 2015). The construction industry was reported to be responsible for employing 507 thousand people during the first half 2014 (CIDB, 2014:5).

The Quarterly Labour Force Survey (QLFS) conducted by Statistics South Africa (Stats SA, 2016) shows increase in formal employment figures in the third quarter of 2015 as compared to the second quarter of the same year. During the period under review, formal construction employment increased 59 thousand in terms of number of people who were employed. Increase in employment during the period under review can be attributed to the increase in the formal construction employment over the same period.

The contribution of the construction industry as indicated in the section highlights the importance that the construction industry plays in the economy of South Africa. The foregoing important contributions of the sector underpin government's empowerment policy of the previously disadvantaged population groups via the construction industry.

2.8 OVERVIEW OF ECFs IN SOUTH AFRICA

The South African government's effort to economically empower individuals from the previously disadvantaged groups to grow small businesses sustainably translated into

the establishment of the ECFs programme. Although activities of ECFs are mainly in the construction industry of the country, their business format is defined within the small business category. ECFs are therefore considered as small businesses in South Africa (NBSA, 102 of 1996; CIDB, 2011a:6). The ECFs are mainly formed and operated by previously disadvantaged population groups consists of blacks, coloured, Indians, women and disabled (Broad-Base Black Economic Empowerment Act, 2003 [BBBEE Act] 53 of 2003).

These population groups were discriminated against with regard to access to education during the apartheid era. Since education level enhances acquisition of knowledge, skills and techniques needed for creating and managing business, depriving these groups of the right to higher education undermined their potential equal chances of creating and managing business as compared to the advantaged population groups. The aim of the ECFs programme is therefore to assist and support individuals from previously disadvantaged groups to establish and manage small businesses, which are mainly in the construction industry (BBBEE Act, 53 of 2003; CIDB, 2011a:4).

In order to achieve the economic empowerment of individuals from previously disadvantaged groups, the government uses the BBBEE Act and the Preferential Procurement policy (PPP), which are geared towards the preferential treatment of individuals in the above named racial and designated groups when awarding government contracts in the construction industry. This preference is in line with helping them create, grow and manage sustainable small businesses (Thwala & Phaladi, 2009:196). Thus the term ECFs is used to refer to small business in the construction industry established, owned and managed by individuals from the previously disadvantaged backgrounds. The owners of such businesses are referred to as Emerging Contractors (ECs).

As stated previously, the mandate of the CIDB is to develop, grow and promote the construction industry in South Africa. This responsibility covers every player in the

industry, no matter their size (CIDB Act 38 of 2000). The government believes the CIDB will assist in its effort to achieve the goal of using the construction industry to economically empower individuals from the previously disadvantaged groups (BBBEE Act 53 of 2003).

This implies that the CIDB is also responsible for the development, growth and promotion of activities of the ECFs that also falls under the construction industry. However, the CIDB indicates that for a small business to be classified under the ECF category and benefit from government support and assistance such as PPP, the small business must exhibit certain prescribed attributes (CIDB Act 38 of 2000). The prime attribute, as indicated by the CIDB Act 38 of 2000, is including individuals from the previously disadvantaged groups who own and operate businesses in the construction industry. These groups as previously stated includes Africans, Coloured, Indians, Women and Disabled who are South Africans either by birth or naturalisation (BBBEE Act 53 of 2003). To allow for easy identification and management, CIDB has categorised construction firms according to specific characteristics. The characteristics are discussed in subsequent sections.

2.8.1 Classification and characteristics of construction firms

The classification of Construction Firms (CFs) in South Africa is based on a classification framework developed by the CIDB to enable it perform its duty of growing and developing CFs which fall under their jurisdiction. The classification framework (see Table 2.5) is developed according to grades on which CFs are classified. The grades determine the level of skills and the level of work that the CFs can perform in the execution and delivery of projects. The CIDB (2013) further indicated that contractors within the construction industry are registered from grades 2 to 9, and their work is classified as either General Building (GB) or Civil Engineering (CE) class of works.

Table 2.5: Classification of contractors in South Africa

Grades	Characteristics
9	Operates at national and international levels
7 & 8	Operates at provincial and regional levels
5 & 6	Operates at local and regional levels
2 to 4	Operates at local levels

Source: CIDB Quarterly Monitor, 2013

The CIDB was established by government with the mandate to develop and grow the construction industry, with the intention of empowering the contractors, regulating activities in the industry and making the industry relevant to the entire nation (CIDB Act 38 of 2000). This is because the South African government considers the construction industry as a key player in the economy of the country, because it generates employment, promotes infrastructure development and provides an income-generating avenue for people (CIDB Act 38 of 2000). CIDB's role is therefore to control the activities of all players in the construction industry, no matter the size of the player; hence the inclusion of ECFs in the CIDB's classification, development and growth.

Based on CIDB's classification framework, most of the ECFs fall within Grades 2 to 6, since the activities of most of the ECFs are either at the local or the regional levels. This level of grading allows ECFs to undertake projects only at the local and regional levels within the country (CIDB, 2013). ECFs within these grades can undertake projects in either the General Building (GB) or Civil Engineering (CE) class of works.

2.8.2 Importance of ECFs in South Africa

The importance of empowering ECFs is that they are able to work in remote locations of the country, and their services are offered at lower costs (CIDB, 2011a:5). In addition, the ability of ECFs to work in remote locations becomes the government's instrument of job creation, income generation and economic growth of the remote communities in which they operate. The empowerment of ECFs could also serve as a

tool to promote entrepreneurship within the communities in which they operate (CIDB, 2011a:5).

With ECFs considered as an instrument for job creation in the country, it means many of the individuals from the previously disadvantaged groups will be beneficiaries of the programme. The Population Census Report (Stats SA, 2012:8) indicates that 88.1 % of the total population that are unskilled fall into the Black Africans and the Coloured population groups. Therefore, the ECFs programme will enable the government to be able to integrate a majority of unskilled population into the main economy of the country.

2.8.3 Challenges confronting ECFs

Activities of ECFs are not without challenges in South Africa despite enabling policies and framework such as the BBBEE and PPP support from the government over the years. Many challenges faced by ECFs reportedly stem from their inability to use formal project management techniques and tools (CIDB, 2011a:7). This is reported to be because most of the ECFs are formed by individuals with little or no construction industry experience and affiliation, as well as low training in relevant technical fields (Martin & Root, 2012). For example, the performance of ECFs in terms of projects they undertake have been characterised by slow delivery due to poor capacity, cost overruns, low productivity and poor workmanship (Ncwadi & Dangalazan, 2006:186).

The above-mentioned challenges are methodological issues peculiar to project management. Therefore, ECFs' ability to overcome these problems should be a consequence of the application of project management techniques and tools. These techniques are taught at higher levels of education, which most owners of ECFs (ECs) did not have access to during the apartheid era.

2.9 ECFs AND PROJECT MANAGEMENT INTEGRATION

The construction business is project oriented (Larson & Gray, 2011:5). Thus, the use of formal project management becomes important in achieving the desired project objectives. Pinto (2013:24) and Brown and Hyer (2010:17) contend that organisations that adopt and implement project management techniques and tools are likely to achieve positive results within the short term, and should be viable in the long run.

Activities and operations of ECFs were earlier noted to be mainly in the construction industry thus these activities could be considered projects, since they are undertaken in the construction industry. Therefore, the adoption and use of formal project management techniques and tools become imperative for ECFs to manage and deliver these projects successfully, in order to achieve their short term business objectives as well as to remain viable in the long term.

It was reported that adoption and implementation of appropriate project management techniques and tools enabled the London Olympic committee to save £2 billion on construction works prior to the 2012 Olympic games (Gale, 2011:10). Although this observation relates to large projects in terms of successful project delivery, the application of project management techniques and tools can also aid the successful delivery of projects of any size and nature (Brown & Hyer, 2010:12; Maley, 2012:1). For instance, if ECFs adopt and implement the key activities (see Chapter 3) of project management in their project endeavours, it could lead to ECFs also benefitting from the successful impact of using the said project management tools and techniques. Therefore, the adoption and use of project management techniques by ECFs could enhance and improve their project performance (Maley, 2012:1). In the end, using project management will benefit ECFs, government, society and other stakeholders, since project delivery outcome of ECFs will be greatly improved.

2.10 SUMMARY

The main issues explored in this chapter were entrepreneurship, small business, the construction industry and the introduction of the emerging construction programme in South Africa.

Although the literature is divided on the definition of entrepreneurship, many of the authors agree that the entrepreneurship definition should include elements of opportunity identification, exploitation of opportunity for personal and environmental benefit, while bearing the inherent risk. Small business definitions explored revealed that authors premised their definitions on quantitative and non-quantitative parameters. The review also outlined country-specific definitions of small businesses, which provided criteria for government funding and other forms of support, especially in developing countries.

Whilst many researchers and authors differ in relation to the differences and similarities between entrepreneurship and small businesses, some believe the two concepts go hand in hand. However, other authors maintain that small businesses are fruits of entrepreneurship. They argue that for a business to be considered entrepreneurial, it has to exhibit innovativeness, profitability in the long term and strategic growth intentions. Therefore, for ECFs, which are largely small businesses to be considered entrepreneurial, they ought to exhibit entrepreneurial orientations which include creativity, innovativeness, calculated risk-taking and autonomy-seeking.

Globally, the construction industry has been noted as contributing to economic and infrastructure development in areas such as buildings, construction of roads, bridges and maintenance of dilapidated buildings, roads, and bridges.

Governments have been reported to be the biggest clients of the construction industry. As the biggest client of the construction industry, the South African government uses the construction industry as a vehicle to socially and economically empower

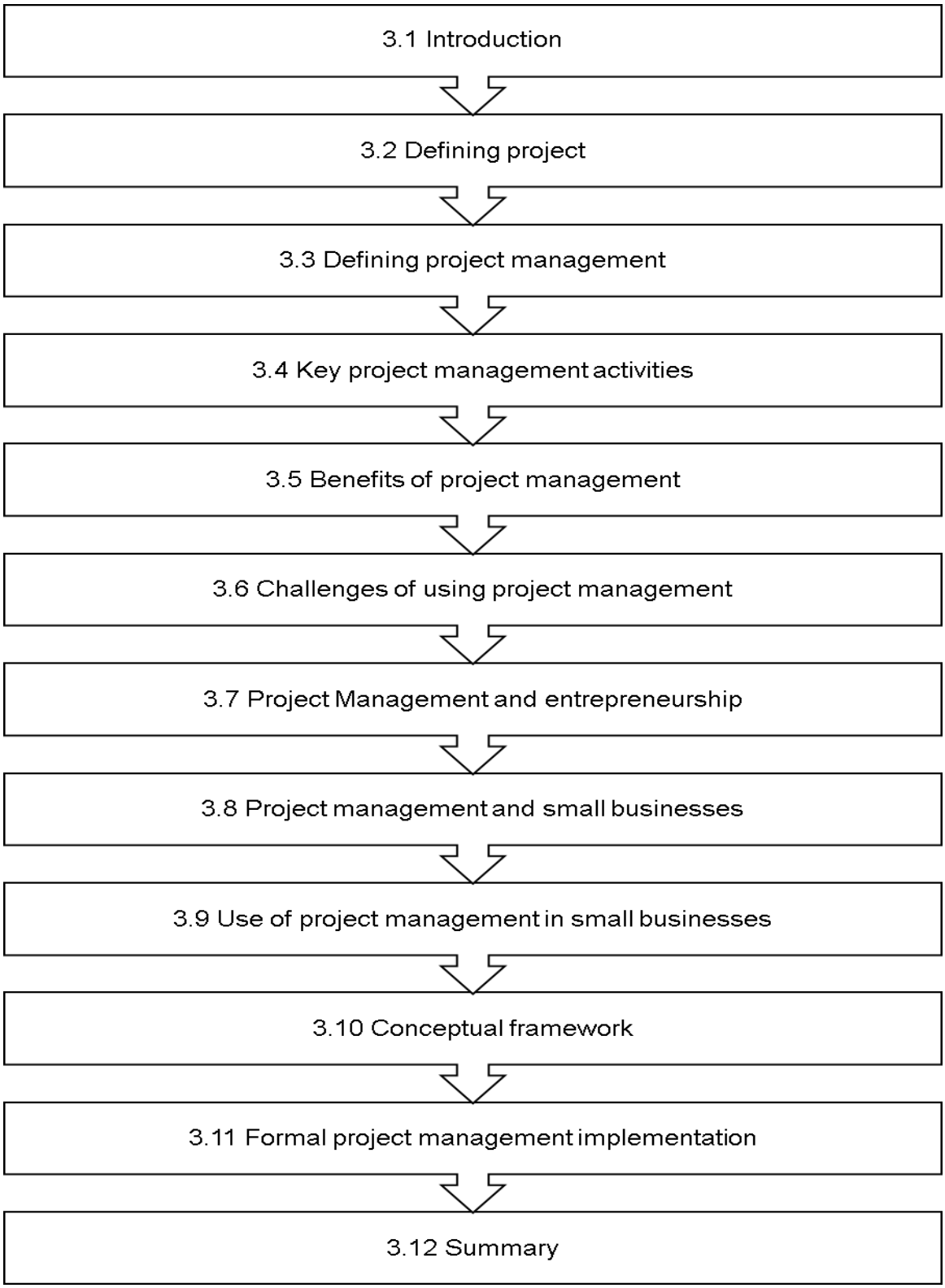
individuals from the previously disadvantaged groups of the country. This has led to the introduction of the emerging construction firm programme, where individuals from the previously disadvantaged groups are encouraged and supported to establish and run small businesses in the construction industry. Such small businesses are referred to as ECFs and the owners of such ECFs are also then referred to as ECs. Even though the industry is reported to be heavily supported by government through policies and acts, the construction industry is still fraught with complains about the activities of the ECFs since most of the projects they undertake are reported to overrun budgeted costs, are completed well after schedule and show poor quality outputs.

Research has shown that good quality project outcomes largely depend on the readiness and adoption of project management tools and techniques (see next chapter). Due to the apparent low quality outcomes of ECFs' construction projects, this study explores the project management adoption readiness of ECFs in South Africa with MMM as a case study.

Finally, despite the fact that ECFs' contribution to the South African economy in various forms has been noted, there is a yawning gap in their project delivery outcomes to be addressed if the ECFs are to be effective, entrepreneurial and survive the competition. The need to address the shortcomings of ECFs becomes even more urgent as they are capable of driving infrastructural development in the remote areas of the country.

CHAPTER 3: THE PROJECT MANAGEMENT, ENTREPRENEURSHIP AND SMALL BUSINESS NEXUS

Chapter outline



3.1 INTRODUCTION

The previous chapter presented an in-depth review of entrepreneurship, small businesses and ECFs. The focus of this chapter is to demonstrate through review of literature how project management techniques and tools could be adopted and implemented strategically by ECFs to improve their business activities. Issues covered in this chapter include the definition of project management, key project management activities, benefits and challenges in relation to project management, and the relationship between project management, entrepreneurship and small businesses. The chapter consequently presents a theoretical and conceptual framework and a summary.

3.2 DEFINING PROJECT

The researcher opines that defining project management should be heralded by a clear conceptualisation of the term "*project*". It is further argued that an effective management of projects could only be achieved if the phenomenon (project) is clearly understood. Kerzner (2013:2) indicates that defining project must precede the definition of project management in order to facilitate an understanding of the process of project management.

Pinto (2013)

Pinto (2013:25) defines a project as a unique venture with a beginning and an end, conducted by individuals or project teams to meet established goals within the parameters of cost, schedule and scope. This conception focuses on the attainment of the goals of the project based on the triple constraints (i.e. cost, schedule and scope) of the project without any concern for the effect on other stakeholders and the environment. A mere regard for the traditional triple constraints as the indicator for a successful project could lead to misjudgement of what exactly should be considered a successful project.

Brown and Hyer (2010)

Brown and Hyer (2010:2) perceive a project as a temporary endeavour undertaken to solve a problem, seize an opportunity, or respond to a mandate. While this definition illuminates understanding of a project as a medium of solving problems and maximising opportunities, it elides the consideration of time, cost and scope as well as the need to be concerned about the environment.

Project Management Institute ([PMI] 2008)

Project Management Institute ([PMI] 2008:5) defines a project as a temporary endeavour undertaken to create a unique product, service or result. Temporality of projects signifies how soon projects can be undertaken but the definition certainly ignores the complexity of projects when undertaken. Furthermore, just like Brown and Hyer (2010), this definition also did not take into consideration the constraints of time, cost, scope and stakeholder effects.

Clements and Gido (2012)

Clements and Gido (2012:4) see a project as an endeavour to accomplish a specific objective through unique set of interrelated tasks and effective utilisation of resources. At the heart of this definition is a consideration of efficient resource usage to the neglect of the subtleties of the quality consideration of the project. These definitions highlight the attributes of a project that differentiate it from other organisational processes which include day to day activities geared towards the production of goods and services (Pinto, 2013:2).

The researcher argues that even though the definitions for a project above have certain shortfalls, such as the omission of key parameters in the individual definitions, they highlighted key considerations for a holistic conceptualisation of the constitution of a project. In line with above definitions, this study defines a project as an endeavour undertaken to accomplish a specific objective, with awareness of the constraints of

time, cost, and scope. In addition, the project definition should also expound the benefits to other stakeholders, as well as exhibiting concern for the environment.

3.3 DEFINING PROJECT MANAGEMENT

As stated in the previous section the definition of project must precede defining project management, to enable clearer understanding of project management. Definitions of project management are now explored.

Project Management Institute (2008)

PMI (2008:6) defines project management as the application of knowledge, skills, tools and techniques to project activities to meet the project requirements. A focus on these variables necessitates the consideration of level of knowledge and skills that are required in order to successfully apply the techniques and tools to meet project requirements.

Clements and Gido (2012) and Maley (2012)

Clements and Gido (2012:14) and Maley (2012:2) conceive project management to be processes involved in planning, organising, coordinating, leading and controlling resources to accomplish a project objective. The traditional management process adopted by this definition fails to highlight the triple constraints which are (time cost and scope) when dealing with projects. That said, an exclusive emphasis on processes is elusive, as it assumes these processes are smooth, consistent and effective. This can be misleading since it does not include all the components of the definition of project management. These components include the concern for the skills, knowledge, tools and techniques that will enhance successful project management.

Kerzner (2013)

Kerzner (2013:4) defines project management as the planning, organising, directing and controlling of company resources for a relatively short-term objective that has

been established to complete specific goals and objectives. It can be inferred from this view that the process of planning, organising, directing, and controlling of company resources is only enough to achieve the set goals and objective of the organisation. In contrast, the researcher is of the view that the knowledge and skills of the people are important in achieving any desirable project management outcome.

Based on the above definitions, a working definition of project management proposed for this study is the application of knowledge, skills, tools and techniques on temporary activities aimed at solving problems, seizing opportunities and responding to mandates within a chosen location in order to achieve project outcomes successfully. This should be coupled with the concern for time, cost and scope whilst also taking into consideration the effect on stakeholders as well as the environment (Brown & Hyer, 2010:2; Carruthers, 2008:5; PMI, 2008:6). Therefore, through the formal adoption and implementation of project management, ECFs should be able to deliver projects successfully by meeting the triple constraints of time, budget and quality as well as meeting the requirements of other stakeholders. The question arises whether ECFs do possess these project management skills. If not, are they ready to adopt and use formal project management techniques and tools in managing and delivering their project activities?

3.4 KEY PROJECT MANAGEMENT ACTIVITIES

In order for project management techniques and tools to be applied in any organisation, PMI (2008:6) identifies five key activities that need to be taken into consideration. These activities are considered the guiding framework for achieving project objectives using project management techniques and tools (PMI, 2008:6). Brown and Hyer (2010:12) argue that these key activities should be followed in sequential fashion to enable logical flow of work. However, Brown and Hyer (2010:12) posit that some projects do not necessarily follow the key activities in sequential fashion, but rather implement the activities in overlapping and iterative ways to achieve successful results. The five key activities are discussed below.

Project Initiation – this involves processes performed to define a new project or a project phase, including the authorisation to start the project or project phase. Clements and Gido (2012:9), Schwalbe (2013:83) and Maley (2012:44) indicate that this is the stage where projects are identified, selected and authorised. However, Schwalbe (2013:83) argues that initiation process takes place during each stage of the activities within the project management process, as every activity must start with initiation process. In Bunin's (2012:6) opinion the following responsibilities must be undertaken at the project initiation stage; setting project goals, identifying the start and finish dates limitations, identifying project budgets and considering quality issues. It can be inferred from this that establishing the duration of the project can assist in determining the critical path for the successful and timely completion of the project while the documentation of the project deliverability helps to locate the broader scope and delimitations to ensure focus as it is implemented. It would be interesting to determine project initiation readiness of ECFs as this lies at the heart of the study.

Project Planning – this includes processes that are performed to establish the scope of the project, define and refine the objectives, and plan actions to achieve the objectives. It is also at this stage that scope definition, resource identification, schedule development, budget identification and risk identification are done on the project (Clement & Gido, 2012:9). This stage could be considered as the key stage for ECFs in using the project management techniques and tools. This is because project activities such as scope definition, cost estimation, scheduling and development of bill of quantities for the tasks to be performed are done at this stage. Project planning will therefore enable ECFs to perform all the above-mentioned project activities, which could lead to a successful project execution outcome. The question again is whether ECFs are ready to adopt and use formal project management techniques and tools that will enable them to engage in planning for their project activities?

Project Execution – this includes processes performed to complete the work as defined in the project management plan (from the planning stage) to accomplish project specifications. This stage, which is also called project implementation, involves the actual accomplishment of specific activities relating to the project as the project

progresses. It is also the stage where individuals who are assigned to tasks, perform work and complete task to produce project deliverables. Plans from the planning stage are accepted at this stage for their implementation (Clements & Gido, 2012:8; Kloppenborg, 2012:6; Larson & Gray, 2014:8). The project execution stage could be considered as the main phase in the key project management activities. It is at this stage that all financial resources, human resources, systemic resources and procedure issues converge and integrate to ensure successful project implementation. For ECFs, this stage can involve shipment of raw materials and equipment to the work site, the organisation, assignment of roles and responsibilities (e.g. landscaping, land surveying, clearing the site, erection of the building/structure). In addition, the assignment of individual roles (e.g. digging trenches, levelling the ground, site excavation, erection of the structure, conforming to construction bye laws) are done by on-site personnel. ECFs could achieve this with the adoption and implementation of formal project management techniques and tools in order to be able to formally and successfully execute their projects. The question is whether ECFs ready to adopt and use formal project management techniques in formally executing their projects.

Project Monitoring and Control – at this stage, processes (such as the evaluation of individual tasks) are performed to track, review and regulate the progress of the project to meet the performance objectives of the project plan. Key activities performed at this stage are: tracking progress made, comparing actual outcomes to predicted outcomes, analysing variance of tasks performed and making adjustments (Kerzner, 2013:3). Kloppenborg (2012:389) indicated that the project monitoring and control stage is a continuous process that should be conducted for entire period of the project. Kloppenborg (2012) also suggested that this stage should also be performed mostly in parallel with the project execution stage of the project management process. The project monitoring and control stage is often considered a very important aspect of the project management process. The project monitoring and control stage enables project teams to deal with variances on a project in terms of planned versus actual work performed, as well as budgeted versus actual cost expenditure, since deviations always occur between the project plan and what actually happens during execution (Brown & Hyer, 2010:294).

Project activities of ECFs could greatly benefit from this stage of the project management process because EFCs would be able to identify the variance between what they have planned and what actually occurs in the project. ECFs therefore need effective project monitoring and control in order to eliminate or at least reduce cost overruns, delays in project completion and scope creep. Moreover, it is also envisaged that corrective actions emanating from project monitoring and control could put a project back on track if the actuals are deviating from the planned actions. These corrective actions include: reducing the duration of activities on the critical path, fast tracking the performance of critical tasks, and reminding project team members of the set objectives as indicated in the planning stage. Consistent with project management and the monitoring and control stage, the corrective actions are taken during the execution stage of the project whiles the project activities are still on-going. This key stage of the project management process could certainly improve the performance of ECFs in the construction industry.

Project Closure – this is the stage where project activities are finalised and the project is formally completed and handed over to the sponsors and stakeholders (Kloppenborg, 2012:427). Even though this stage looks like the end of work for most people working on the project, it is important as any stage of the project management process and should be managed as carefully as all other stages (Larson & Gray, 2014:505). According to Brown and Hyer (2010:37) this stage allows the project manager to conclude the project while affording clients the opportunity to make final inputs to the project. For most projects, final payments are also made at this stage, based on the agreements that were made before the commencement of the project (Brown & Hyer, 2010:337). In contrast, payment for some projects is based on contractors meeting certain critical milestones, as indicated by the project sponsor. Organisations that are project oriented need the lessons learned from the project closure stage to aid their next project in areas such as estimating the duration of the tasks to be performed, identifying people who could work on the project, budgeting for the tasks and scheduling the tasks (Brown & Hyer, 2010:337; Kloppenborg, 2012:428; Larson & Gray, 2014:506). Though not always done, project documentation, its handover to project sponsor by contractors and the commissioning of the buildings/structure for its owners is normally done at this stage. Documentation helps

to identify the critical milestones in project implementation, real detours made during project completion and the critical successes of the project, including lessons learnt. The commissioning of the physical structures helps contractors to handover the overall project to the sponsors of the project.

Bourgeois (2008:23) asserts that though the above-mentioned project management (initiation, planning, execution, monitoring and control and project closure) stages in reality their implementation as well as the transition from one stage to another may not be visible or distinguishable allow for the elimination of all problems within the project. However, the rigorous description and the performance of each stage might be helpful in understanding the human resource, financial resources, and material demands of each stage. Taking into account the above mentioned stages and applying them in the project management process might be sufficient in eliminating the pitfalls of project management (Bourgeois, 2008:23). What is needed for the successful project management process is appropriate communication of project status among project team members that will provide early warning signs for the application of contingency plans and corrective actions to put the project back on track.

Based on the above discussion the researcher argues that the adoption and implementation of the project management process in ECFs can improve their ability to reduce construction cost overruns, reduce project delays, and coordinate work at the construction sites. In turn, this will lead to EFCs' successful delivery of projects to the stakeholders. However, the ability of ECFs to benefit from the project management activities mentioned above is dependent on their willingness to adopt and implement formal project management techniques and tools in their project endeavours.

3.5 BENEFITS OF PROJECT MANAGEMENT

Project management is known to have several benefits for organisations that adopt and implement it as their management tool for project and strategy delivery (Meredith & Mantel, 2010:13; Pinto, 2013:24). Using project management tools and techniques enables the right projects to be done right, enhances effective execution of the

selected projects and allow organisations to determine their top priorities by taking a disciplined approach to getting work done (Bourgeois, 2008:23; Ladika, 2008:32). Tenstep.com (2015) and Schwalbe (2009:3) mention that some organisations reported the following as some of the benefits of employing project management techniques and tools in their business activities, these benefits includes but not limited to the following.

- Adoption and use of project management techniques and tools have been reported to lead to the **improvement of financial management** within the adopting organisations (Schwalbe, 2009:3). This results from better project definition, better estimation, formal budgeting and better tracking of actual project cost with the budgeted cost of the project (Tenstepm.com, 2015). This results in better financial predictability and control during project activities, thereby enabling the organisation to make sound financial decisions (Schwalbe, 2009:3; Tensteppm.com, 2015).

- Another benefit of using project management techniques and tools is that an organisation is able to **complete projects quickly and cheaply**. This is because with the use of project management techniques and tools, the organisation might have created a template of project procedures, which could be used on subsequent projects (Tenstepm.com, 2015). By so doing the organisation will no longer have to spend so much time on planning projects from scratch since the historical information could be used.

- Using project management techniques and tools also **enable risks to be resolved** before they occur in the project endeavour. This is because one key aspect of the project management methodology is the risk management process (Tensteppm.com, 2015). The risk management process is considered more a proactive than reactive approach (Larson & Gray, 2014:207). Before projects are undertaken, a thorough risk management assessment is done which aids the project team in being aware of possible unforeseen risks that could occur within

the project, thereby prescribing ways to deal with them if they occur in the project (Larson and Gray, 2014:207).

- With the application of project management techniques and tools, **project work becomes more predictable,** which will enable the project team or the organisation to know what is supposed to be achieved at the end of the project. Consequently, adequate planning, which is a key part of the project management techniques and tools, empowers the project team to become aware of what needs to be accomplished at each stage of the project. Therefore, the project team can tell what needs to be done thereafter.

- The use of project management techniques and tools **enables proactive scope management,** which leads to the avoidance of scope creep and saves cost from scope creep. Scope creep is one of the things that affect projects negatively. With scope management, project details in terms of scope are well described, thus project teams are aware of what is and is not supposed to be included in the project. Therefore, project teams are able to avoid unnecessary additions to the project during the course of the project (Larson & Gray, 2014:102). This could benefit ECFs since most of their project endeavours are fixed cost, and therefore cannot afford the occurrence scope creep in the project management activities. The question then arise how ready are ECFs are to adopt and use formal project management techniques and tools in order to reap these benefits

3.6 CHALLENGES OF USING PROJECT MANAGEMENT

It is widely reported that not all organisations adopt and use project management techniques and tools although, these techniques and tools are reported to provide several benefits to organisations that apply them to their business activities. The inability or refusal of organisations to adopt and use project management techniques and tools has been linked to certain challenges that come with the adoption and use of these techniques and tools.

Tensteppm.com (2015) argues that the following constitute the most important reasons or challenges that come with adopting and using project management techniques and tools by organisations.

- The adoption of project management tools and techniques requires **upfront investment of time and effort.** The adoption and use of project management techniques and tools required detailed planning before activities are started (Larson & Gray, 2014:8) and most organisation do not have the patience to plan before embarking on their business activities that could be considered as projects and therefore need project management techniques and tools. For ECFs, this is a major hurdle since several reports have indicated that they do not use project management in their project activities. This could be because ECFs are not ready to adopt and use formal project management techniques and tools on their project activities. The researcher argues that the aforementioned challenge might be a result of lack of the requisite knowledge and skills in the application of formal project management techniques and tools on projects, and their added benefits.

- **Non-commitment of organisations**. Adoption and use of project management techniques and tools in any organisation requires commitment, since the application of the techniques require organisational change in order to be able to accommodate the techniques and tools. In most organisations, employees from other functional areas must be used in the process of undertaking projects using the project management techniques and tool. This could be a major challenge for ECFs, since they are small businesses who do not have permanent employees and therefore must work with different group of people for each project. This can be avoided by ECFs maintaining a core project management team. However, ECFs would only be able to maintain a core project management team if they are ready to adopt and use formal project management techniques and tools that highlight the importance of project management teams.

- **Lack of the right and needed skills**. Adoption and application of project management techniques requires certain mix of skills for it to be used effectively (Larson & Gray, 2014:17; Kloppenborg, 2012:5). Therefore, without the required

mix of skills, it will be impossible to implement project management techniques and tools. In case of ECFs, it is widely reported that they lack the necessary project management skills, therefore it might not be possible for them to adopt and use formal project management techniques and tools. However, these skills can be acquired if ECFs are ready to adopt formal project management techniques and tools on their project activities via formal training.

- **Fear of control from team members**. In some organisations, employees feel the adoption and implementation of project management techniques and tools may lead to them being tightly controlled, which will lead to their creativity being taken away. This is because employees believe without project management techniques and tools they have minimum supervision and control, which will enable them to do their jobs creatively.

Management in many organisations fear the introduction of project management techniques and tools could lead to their loss of control in their organisation, because of the use of a project manager who must be in charge of the project activities until they are successfully delivered. However, for formal project management to be useful and effective in any organisation, the project manager must be given control (Larson & Gray, 2014:339). Based on this study, the emphasis is that the owners of the ECFs must lead the process of adopting and using formal project management techniques and tools. This might make it easier for ECF owners to see the relevance of giving the project manager total control. However, the project manager in this case could also be the owner of the ECF. The question is whether the project managers as well as their employees are ready to adopt project management Tools and techniques.

3.7 PROJECT MANAGEMENT AND ENTREPRENEURSHIP

Project management has been used in this study to imply the application of knowledge, skills, techniques and tools by an organisation in order to achieve successful project outcomes should be coupled with the concern for time, cost and scope whilst also taking into consideration the effect on stakeholders as well as the

environment (Clements & Gido, 2012; Brown & Hyer, 2010; PMI, 2008). On the other hand, entrepreneurship emphasises the process of creating new ventures to satisfy a wide range of stakeholders, including customers, suppliers, government and other stakeholders (Kuratko, 2014; Van Aardt, et al., 2011; Venter, et al., 2008; Schaper & Volery, 2004). At the heart of entrepreneurship is the identification of new opportunities and their strategic exploitation to generate new products or services for the benefit of the owner (utilitarian benefit) and society (spill-over benefits).

Similarly, the core mandate of project management is the application of knowledge, skills, techniques and tools to achieve successful project outcomes. Projects are considered as temporary, unique and time bound endeavours undertaken to achieve organisational objectives. Therefore, project management and entrepreneurship can be considered to share many distinguishing features. For instance, creation of a new venture (itself the bedrock of entrepreneurship) can be conceived as a project since this process is unique, temporal and time bound (project management, 2008:5). In view of this insightful observation, there is scope for applying project management techniques and tools in the process of creating new ventures (PMI, 2008:6; Larson & Gray, 2014:10).

Burke (2014:22) mentioned that the application of entrepreneurial attributes in project management could enhance the skills and styles of the project leader in spotting and exploiting new opportunities that can be directed at achieving successful project outcomes. For example, an entrepreneur is able to spot new opportunities such as: bidding for a new construction project, development of a new road network, or development of a new residential suburb in an environment. With his or her entrepreneurial attributes, the entrepreneur is able to identify ways to exploit the opportunities. These entrepreneurial attributes include: opportunity identification, creativity and innovation, calculated risk taking, negotiation process, passion and enthusiasm as well as determination and persistence (Burke, 2014:22). The entrepreneur could be able to exploit these opportunities using project management techniques and tools since these opportunities identified earlier could be considered as projects. It could therefore be argued that the entrepreneurship and project

management process can be used by ECFs in achieving successful outcomes, since every new opportunity spotted by an entrepreneur could be considered as a project, and projects are best implemented using the project management tools and techniques.

The use of the project management tools and techniques could be used to exploit new opportunities identified by an entrepreneur with his or her entrepreneurial attributes. This implies individuals are able to accomplish tasks using project management tools and techniques successfully in the entrepreneurial process with the use of creativity, drive and willingness to take risk (Barringer & Ireland, 2006:6). For example, in the construction industry, being able to identify a new development and subsequently tendering for it is the start of the opportunity identification and willingness to take risks process, since the outcome of this processes might or might not be favourable.

One can therefore discern a confluence of entrepreneurial and project management processes in the areas of idea generation, planning, implementation, monitoring and controlling activities of the entrepreneur and the project manager (ECF manager). From the argument above, ECFs could be said to possess certain levels of entrepreneurial skills. The same cannot be said of their project management skill level since their project management skills are widely reported to be inadequate. However, the readiness of ECFs to adopt and use formal project management techniques and tools can lead to the acquisition of the required project management skills for entrepreneurship and project management integration.

3.8 PROJECT MANAGEMENT AND SMALL BUSINESSES

Small business is defined in South Africa as a separate and distinct business entity that is managed by one or more owners, and operates in any sector of the economy (NSBA, 102 of 1996, Amended 2004). Businesses, no matter the size and projects, exist for specific purposes (Philips, 2012:3). Whiles businesses exist primarily to make money, projects have the purpose to achieve organisational goals within the constraints of estimated budget, limited time and quality, while striving to meet the

requirement of all stakeholders (Philips, 2012:3). Projects could therefore be used as channels by small businesses in the pursuit of their business goal of profit-making (Philips, 2012:3).

One of the effective ways for the attainment of business goals by small businesses could be the adoption and use of project management techniques and tools for projects they undertake. Project management techniques and tools are known to aid in minimising project cost overruns, delay of project activities as well as enabling corrective measure to be taken during the execution of project activities. Applying project management techniques and tools will therefore enable small businesses to take advantage of the benefits of using project management techniques and tools in their business activities as discussed in Section 3.3.

Philips (2012:1) indicates that the only difference between managing projects and managing small business is that projects are temporal while small businesses can be long term endeavours. However, small businesses and projects are similar in the sense that they both have objectives to accomplish, employees, costs and schedules to control, as well as customers' needs to satisfy (Philips, 2012:1). Thus, the adoption and use of project management techniques and tools could help small businesses such as ECFs to get projects completed, thereby achieving their main purpose of making money. ECFs are small businesses that operate in the construction industry and as all small business entities they have as their purpose making money.

3.9 USE OF PROJECT MANAGEMENT IN SMALL BUSINESSES

With the notable contribution of small businesses to economic growth, innovation and job creation, many authors are of the view that the application of project management techniques and tools can further enhance this contribution (Ledwith, Turner & Kelly, 2010). However, the authors are of the view that small businesses do not have to use the bureaucratic approach that is used by larger businesses (Ledwith, Turner & Kelly, 2010; Philips, 2012:4). This is because small businesses, by their nature, undertake projects that are of small size and less complexity as compared to large businesses.

Therefore, the use of less bureaucratic project management techniques and tools should be possible in small businesses.

Philips (2012:4) argues that the less bureaucratic project management approach for small businesses should include only essential project management techniques and tools, which in addition must focus on people and the specific roles they play in a project. These roles are that of project customer, project team, project manager and the business owner.

Many authors bemoan the sparse amount of literature on project management in small businesses (Ledwith, Turner & Kelly, 2010). Ratnasingam (2007:91) mentions that small businesses are moving toward the application of project management techniques and tools in their operations. Ratnasingam (2007:91) believes the move toward the application of project management techniques and tools by small businesses is because they have been able to achieve results within specific time frame and resource constraint.

Pinto (2013:28) indicates that the adoption and use of project management techniques and tools require preparation, knowledge, training and commitment to the basic principles of project management, which are the key activities discussed above (see Section 3.2). The researcher aims at investigating the level of preparedness among EFCs for adoption and use of formal project management techniques and tools.

Schwalbe (2013:7), Kerzner (2013:30), Maley (2010:52) and Nagarajan (2010:52) are of the view that the success of project management in organisations of any size is dependent on the location of the project manager in the organisation. Furthermore, Kerzner (2013:30) and Nagarajan (2010:52) mention that the location of the project manager reflects the role she or he plays in realising the objectives of the organisation. EFC managers who are also the project managers are centrally located in relation to their project activities, and therefore are required to be prepared in discharging the

project managers' roles. The preparation to take up this is dependent on their level of project management adoption readiness.

In view of the foregoing propositions, the adoption and use of project management techniques and tools in small businesses should not be a difficult endeavour if the owners of these businesses are trained in the basic principles of project management, and are committed to using the techniques and tools. ECFs are essentially small businesses that operate mostly in the construction industry where most of their activities are project oriented (Larson & Gray, 2011:3; Pinto, 2013:25). The adoption and use of project management techniques and tools becomes an indispensable key to their successful achievement of their business outcomes.

The discussions from the introductory chapter (Chapter 1), the literature review in Chapters 2 and 3 (up to this point) leads to the development of the conceptual framework in Figure 3.1 to guide the empirical research stage. The next section presents and discusses the conceptual framework illustrated in Figure 3.1.

3.10 CONCEPTUAL FRAMEWORK

Flowing from Kloppenborg (2012:5); Bricknell, et al. (2011) and Pinto (2010:62), this study proposes that formal project management adoption readiness of ECFs is dependent or an outcome of organisational culture, structure and project management skills. This relationship is depicted in the conceptual framework in Figure 3.1. Following sections explain the interrelationships of the variables in Figure 3.1.

Figure 3.1: ECFs project management adoption readiness framework

3.10.1 Project management skills

In this study, project management is characterised as the application of knowledge, skills, tools and techniques on temporary activities aimed at solving problems, seizing opportunities and responding to mandates within a chosen location to project activities to meet project requirements (PMI, 2008:6; Brown & Hyer, 2010:2). Thus, the project management knowledge and skills of the project manager as well as project team members is crucial in the adoption of project management techniques and tools. Kloppenborg (2012:5) states that for a person to be able to effectively manage and lead in a project environment, the person needs to develop both hard and soft skills. The hard skills include risk analysis, quality control, scheduling, budgeting, and working among others, while the soft skills include communication and leadership skills. Even though both sets of skills form part of the project management knowledge areas as contained in Project Management Body of Knowledge (PMI, 2008), it is possible for individuals to learn the soft skills independently once they have acquired the hard skills. However, in the case of the hard skills, individuals need to be trained to be able to apply them.

In case of ECFs, it will be a tall order to expect owners of such firms to possess these hard skills as a prerequisite for starting their businesses in the construction industry,

since these skills are not readily transferable because of their specialised nature. Most of the owners of ECFs are individuals from the previously disadvantaged population group who have been denied access to higher education during the apartheid era. Therefore, in the South African government's effort to economically empower them, they do not have to possess any specialised skills, which are considered as hard skills, to start and operate the ECFs.

These hard skills are mostly taught and learnt at higher levels of education, to which the owners of ECFs did not have access, because of the apartheid education system prior to 1994. It may be argued that apartheid ended 20 years ago, but it must also be remembered that its legacy still affects certain groups of individuals from the previously disadvantaged populations. For example, the latest Population Census Report (Stats SA, 2012:8) indicates that only 8.6% and 7.7% of the black and coloured population groups nationally have access to higher education. This has left a huge proportion of the population unskilled since the black and coloured population groups make up 88.1 % of the total population of the country (Stats SA, 2012:1). It can therefore be inferred that the legacy of apartheid still affects majority of the previously disadvantaged population groups. Therefore, for owners of ECFs to be able to adopt formal project management techniques and tools, they have to acquire the relevant capabilities and skills as highlighted by Kloppenborg (2012). These skills could be acquired through project management training programmes from higher institutions of learning as well as other learnership programmes directed towards the use of project management techniques and tools by ECFs.

In addition to project management skills, organisational culture and structure are also considered as key factors in determining the readiness of an organisation to adopt project management techniques and tools (PMI, 2008:27-28). The following sections consider organisational culture and organisational structure as they relate to the organisational readiness for adoption of formal project management techniques and tools.

3.10.2 Organisational culture

Good project management requires a supportive organisational culture (Schwalbe, 2009:208). The culture of an organisation comprises the formal and informal practices and the values that are shared among members of the organisation and are taught to new members (Kloppenborg, 2012:59; Pinto, 2013:76). For Ehlers and Lazenby (2010:292) organisational culture is the unstated assumptions, beliefs, and behavioural norms and values that members of an organisation share. Graetz, et al. (2006:58) maintain that these values and practices are what influence the performance of the organisation in the discharge of its mandate for the achievement of the set goals.

Pearce and Robinson (2011:340) conceive an organisational culture to be similar to an individual personality that provides meaning, direction and basis for action. In addition, Pearce and Robinson (2013:368) mention that the same way personality influences the behaviour of an individual, the shared beliefs and values among members of the firm can also influence the actions within the firm. Based on the definitions of organisational culture above, it can be concluded that the way individuals behave within a firm have a very huge influence on the performance of the firm.

The culture of the firm can be traced to the individual beliefs and values of the employees or that firm. For ECFs for example where they are in most cases owned and managed by one person, the beliefs and values of the owner can play a key role in making changes to the firm's strategies and management process. This implies that changes in the culture of small firms are influenced by the owner of the firm since his or her actions will form the basis of how all employees will perform or behave within the firm.

The decision of an organisation to adopt a new culture as well as the organisation's attitude, is dependent on the pre-existing culture of the organisation (Ehlers & Lazenby, 2010:294; Hayes, 2010:415). Hayes (2010:415) suggests that for changes in organisational culture to be successful, members have to be prepared to let go of their old ways of doing things and fully embrace and adopt new culture. However, the

researcher believes that for individuals to let go of pre-existing ways of doing things, they have to perceive the anticipated benefits and the importance of the new approach they have to adopt. It can therefore be concluded that for ECFs to adopt formal project management techniques and tools they have to be aware of the importance and benefits of adopting the project management techniques and tools in their project endeavours.

In ECFs, organisational culture might not be formally entrenched, as these businesses are in most cases owned by one person and informally operated. This implies the culture of the business is based on the culture exhibited by the owner of the business. The size of the business could also affect the entrenchment of the culture within it (Ehlers & Lazenby, 2010:294). For Ehlers and Lazenby (2010:294), it is easier to create and maintain organisational culture in smaller organisation than in larger organisations. This is because with a smaller organisation individual interaction and communications are less formal and complicated, therefore it will be easier for members to quickly adopt to new ways of doing things.

This implies the adoption of formal project management techniques and tools in ECFs should be much easier if organisational cultural changes have to be made. It is the responsibility of the leaders of an organisation to create the culture of that organisation (Ehlers & Lazenby, 2010:294). ECFs are known to be usually owned and run by one person. Therefore, the attitude, beliefs and values of the owner are important in creating a suitable organisational culture that new members could align with. However, it is possible for the same attitude, belief and values of the owner to impact negatively on the culture of the organisation, which will also affect the way new members align themselves with the organisation.

3.10.3 Organisational structure

Ehlers and Lazenby (2010:320) see organisational structure as the framework within which the strategic processes of the organisation must operate to achieve organisational goals. Ehlers and Lazenby (2010:320) further mention that

organisational structure aids in identifying the necessary tasks to enable coordination of those tasks so that organisation goals can be achieved. Moreover, organisational structure plays the role of responsibility assignment in aiding the organisation goals. It can therefore be said that for organisation to be able to perform tasks for the achievement of their organisational goals, it is important for the organisation to have a relevant structure in place for task assignment and task performance. Ehlers and Lazenby (2010:324) identified entrepreneurial, functional, divisional, strategic business unit, matrix and network structures as the organisational structures that can be adopted by an organisation in the performance of its work activities.

For Pinto (2010:62), organisational structure includes the formal reporting relationships, the grouping of individuals into departments and effective communication and coordination across departments, which affects how projects are managed and delivered. Whilst the definition highlights the grouping of individuals to enhance effective communication and coordination in managing and delivering projects, it fails to mention how task and responsibilities will be assigned among individuals. However, it is important to know how tasks and responsibilities will be assigned, so individuals can take control of tasks they are to perform for the successful completion of the project. Pinto (2013:65) mentioned functional, project and matrix as typical organisational structures that can be adopted by an organisation. Pinto (2013:64) however warned that a structure does not happen by chance, but is as result of forces acting on the firm that are mostly from the external environment of the firm. Some of the forces include competitors, customers in the marketplace and government regulations among others.

Pearce and Robinson (2013:321) refer to an organisational structure as the formalized arrangement of interaction between and responsibility for the tasks, people and resources in an organisation. According to Dess, Lumpkin, and Eisner (2012:399) these formalised structures ensures that resources are used effectively in accomplishing organisational objectives. Thus, for work to be performed in any organisation there needs to be a formal definition of how individuals and resources are assigned to tasks in order for work on the tasks to be accomplished. Without this formal

structure, individuals might not be able to know what task they are supposed to perform, and with whom they have to communicate in case there are problems related to the task on which they are working.

In line with the above argument, it could be concluded that the structure of an organisation is key in the implementation of any change or plan within that particular organisation. Pearce and Robinson (2013:321) identified several organisational structures that can be adopted by organisations to suit their work activities. These include simple organisational structure, functional organisational structure, divisional organisational structure, matrix organisational structure and product team organisational structure.

With regards to the argument on organisational structure so far, and taking into consideration the focus of the study, the researcher is of the view that the simple and entrepreneurial organisational structures as depicted by Pearce and Robinson (2013:321), and Ehlers and Lazenby (2010:324) would be suitable for ECFs. Thus, entrepreneurial and simple organisational structures are further explored for clearer understanding, and also to highlight why the researcher believes that these two structures are suitable for ECFs to adopt in their business organisations.

Pearce and Robinson (2013:321) see a simple organisational structure as a structure comprising an owner and few employees where the arrangement of tasks, responsibilities, and communication are highly informal and accomplished through direct supervision. In addition, all strategic and operation decisions are made by the owner or a small owner-partner team. With the primary concern of small businesses being survival, the owner makes all the necessary strategic decisions that will make sure s/he stays in business, therefore the total control of the owner is key in this type of organisational structure (Pearce & Robinson, 2013:321).

The following are some of the advantages of the simple organisational structure as indicated by Pearce and Robinson (2013:321):

- *affords the owner overall control of the business,*
- *allows for rapid response to product/market shifts,*
- *offers the ability to accommodate unique customer demands with major coordination difficulties,*
- *encourages employees to multitask*.

Although simple organisational structure is depicted to offer some advantages, Dess, Lumpkin, and Eisner (2012:401) mention the following as some of its disadvantages that must be taken into consideration:

- *Employees may take advantage of lack of regulations and act in their own self interest*
- *Recruiting and retaining talent may become very difficult*
- *Employees may not clearly understand their responsibilities due to the informality*

Ehlers and Lazenby (2010:324) indicate entrepreneurial structure to be simple structure consisting of owner-manager and employees. Decision-making and monitoring of employees as well as the general day to day running and operation of the business is done by the owner-manager. In addition, work process and outputs are less standardised compared to larger and established organisations. The work process and outputs within this type of organisation structure may change depending on the focal point of the organisations. Furthermore, the norms and values of the owner-manager form the basis of the organisational culture of the firm.

Flexibility and inexpensive, direct communication of strategy to employees and tight strategy structure are considered some of the advantages of the structure whiles

inadequate time to explain strategy directly to employees and difficulties in control and coordination are considered as some of its disadvantages.

Based on the above observation simple and entrepreneurial structures can be considered to represent the typical structure that is operated by small businesses in South Africa. Therefore, there seems to be a convergence between the simple and entrepreneurial structure since the two typologies exhibit similar characteristics. This researcher therefore opines that for optimal results, ECFs need to adopt an integrated simple entrepreneurial structure. It must also be noted that projects are time bound and temporary endeavours, so it will not be necessary for the ECFs to have a very formal and huge structure which might involve much money to maintain. However, with the project-oriented nature of the activities of ECFs, it might be argued that the use of project organisation (Pinto, 2013:67) must be the ideal structure to adopt. The researcher however, believes that with the nature of ECFs the simple structure where the owner has the necessary knowledge and skills in project management could be more viable. This is because s/he will have the total control over the activities that must be undertaken just as in project organisation where the project manager has total control of project activities (Pinto, 2013:67; Larson & Gray, 2014:71).

3.11 FORMAL PROJECT MANAGEMENT IMPLEMENTATION

Although this study focuses on formal project management adoption readiness of ECFs, it is important to also highlight the implementation of the adopted project management techniques and tools. This understanding is intended to assist owners of ECFs to go beyond adoption readiness to actually understand how implementation of project management techniques and tools fit into the readiness framework (see Figure 3.1).

The proposed model (see Figure 3.2) depicts how ECFs could achieve effective project management implementation after adoption. Formal project management implementation requires change in management processes. In the project management context, effective project management implementation is contingent on

organisational structure, culture and skills moderated by Organisational Change Readiness (OCR) (Pinto 2010; Kloppenborg, 2012). OCR was fully discussed in Section 1.4.1. ECFs could therefore implement project management effectively if the organisational environment is conducive to change, change management competencies are available while structure, culture and skills in the ECFs are conducive to change.

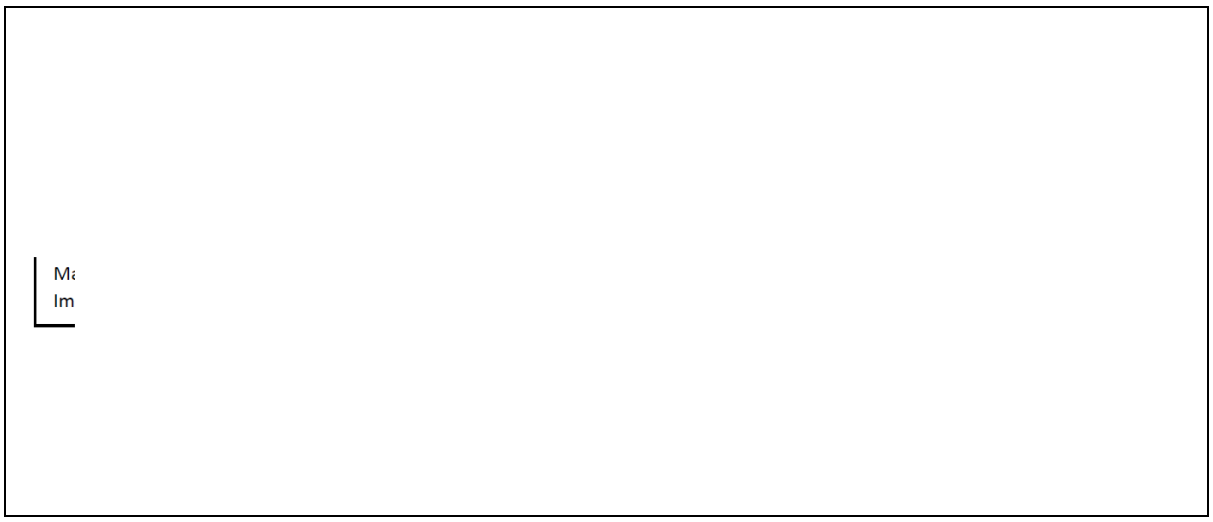


Figure 3.2. A formal project management implementation Model

3.12 SUMMARY

From the literature review, it could be observed that in order to understand the concept of project management, it is important to define what project means. In this respect, project management implies application of knowledge, skills, tools and techniques on temporary activities aimed at solving problems, seizing opportunities and responding to mandates in order to achieve project outcomes successfully. This is achieved taking into consideration the concern for time, cost, scope and the effect on stakeholders and the environment.

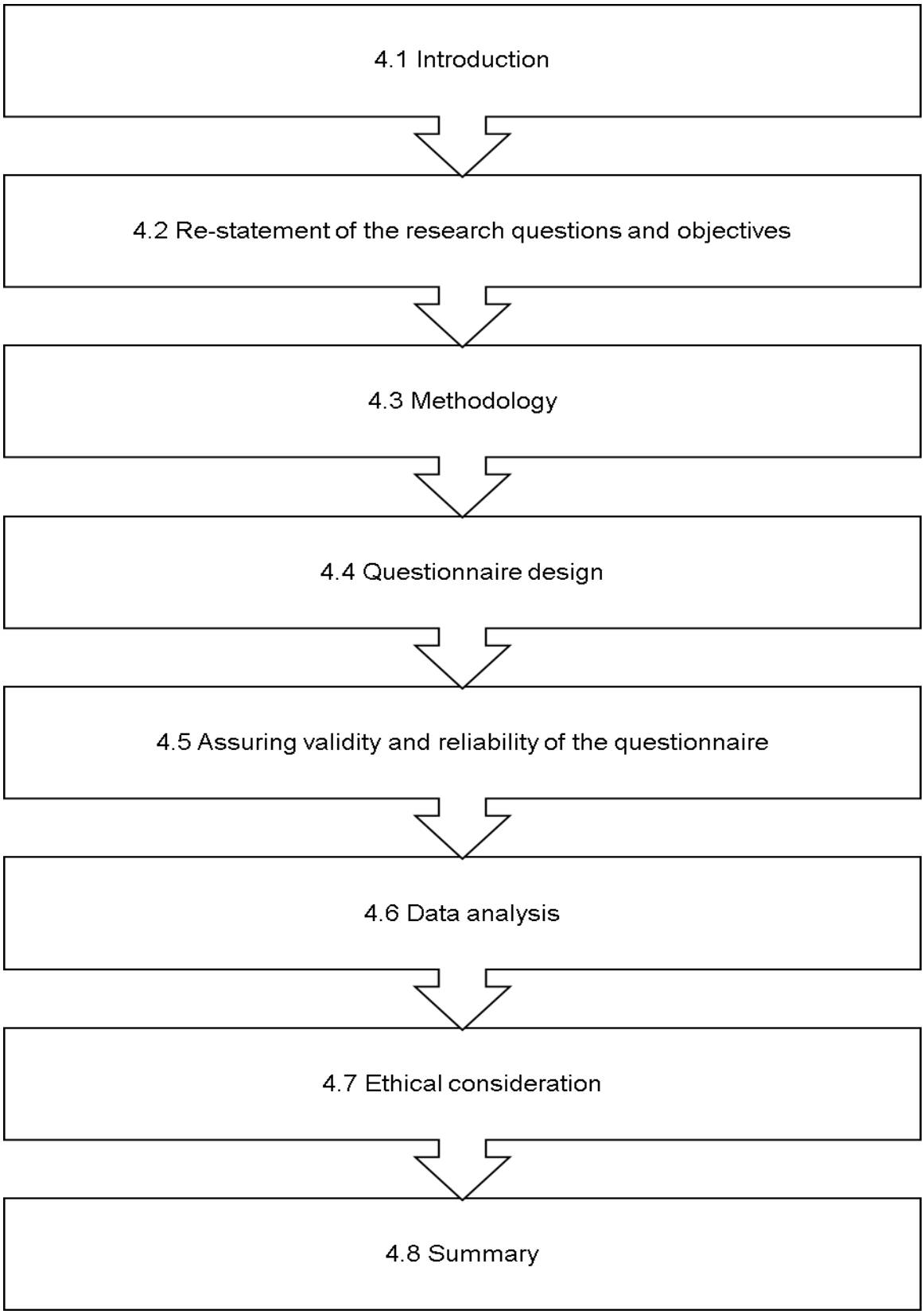
It is also discernible from the literature review that project management techniques and tools can be used to achieve desirable project outcomes even in small businesses. In addition, several authors argue that small businesses require a simpler and less bureaucratic project management approach for their project endeavours,

rather than the more complex approach used by larger businesses. Thus, it is envisaged from literature that ECFs that want to achieve successful project outcomes but do not readily use project management techniques and tools could use the simple-entrepreneurial and less bureaucratic project management approach. However, the literature also showed that for ECFs to adopt and use formal project management techniques and tools efforts must be made in acquiring the right skills, creating a conducive culture within their organisations as well as providing the right structure for project management tools and techniques to be adopted and implemented.

In conclusion, the formal adoption readiness of project management techniques and tools should be dependent on the efforts and the commitments of the owners or managers of these ECFs.

CHAPTER 4: RESEARCH METHODOLOGY

Chapter outline



4.1 INTRODUCTION

The previous chapters (Chapters 2 and 3) reviewed the literature in relation to entrepreneurship, small business, project management, construction industry, and ECFs. This chapter focuses on the research methodology used, the research philosophy adopted, the research design, the population, sampling technique used, and data collection method employed, which were briefly mentioned in Chapter 1. Credibility, including issues relating to measurement instrument validity and reliability, data analysis, as well as ethical considerations of the study are also presented and discussed. In addition, the research questions and objectives of the study are restated.

4.2 RE-STATEMENT OF THE RESEARCH OBJECTIVES AND QUESTIONS

This section recapitulates the research objectives and questions.

4.2.1 Research objectives

The main objective of the study which guided this study was to determine the formal project management adoption readiness of emerging construction firms in Mangaung Metropolitan Municipality (MMM). Consequent to this main objective, the following subsidiary objectives were set.

1. To determine the awareness of core project management skills of ECFs in the MMM;
2. To determine the level of core project management skills of ECFs in the MMM;
3. To assess the organisational structure of ECFs in the MMM;
4. To assess the project management process in ECFs in the MMM;
5. To determine the extent to which the organisational culture supports project management of ECFs in the MMM;
6. To determine management's commitment to a long-term project management implementation process in ECFs in the MMM.

4.2.2 Research questions

In order to achieve the stated objectives of the study, the specific research questions that that appear below were considered:

1. Is project management considered a core skill by ECFs in the MMM?
2. What is the level of project management skills of ECFs in the MMM?
3. What is the dominant organisational structure of ECFs in the MMM?
4. Are there existing organisational project management processes in ECFs in the MMM that define how to initiate, plan, control, execute, and close projects?
5. To what extent do the organisational culture of ECFs in the MMM support project management?
6. How committed are owner/managers of ECFs in the MMM to long-term implementation of project management process?

4.3 METHODOLOGY

Dawson (2009:14) defines research methodology as incorporating the philosophy and the research activities as undertaken by the researcher. This part of the methodology details the philosophy guiding the research and the research activities undertaken.

4.3.1 The research philosophy

Generally, research philosophy, also called research paradigm, is classified as either positivist or interpretivist (Welman, Kruger & Mitchell, 2005:6; Bryman & Bell, 2007:16; Bernard, 2013:7). The positivist paradigm follows the scientific method of the natural sciences, which emphasises researcher objectivity and independence. The interpretivist approach encourages subjectivity, especially in social research (Curtis & Curtis, 2011:12; Neuman, 2011:95). The guiding research paradigm for this study is positivism. The use of the positivist approach is based on the author's quest for objectivity and the need for generalizability of the findings (Sekaran & Bougie, 2013:29). The positivist paradigm enables exact measurement and objective research, which the researcher wishes for (Neuman, 2011:95). Additionally, a purpose

of the research is to gather sample responses to be used to extrapolate findings to the larger target population (Neuman, 2011:95).

Kumar (2011:104) notes that a researcher's chosen research paradigm determines the research design. Accordingly, the chosen positivist philosophy influenced the research design described in the next section.

4.3.2 Research design

Kumar (2011:94) defines research design as a procedural plan that is adopted by a research to answer research questions. Mustafa (2010:85) expatiates that research design is "a plan of action, a conceptual structure, a blue print and a strategy of investigations so as to obtain answers to the research questions of a study". Bryman and Bell (2007:40) see research design as a framework for collecting and analysing data. From the three definitions, research design seemingly enables the collection and analysis of data to answer the research questions of a study. In Mustafa's (2010:86) view, a research design should contain "a clear statement of the problem, procedure and techniques to be used for data collection, the population to be studied, and the methods to be adopted in the processing and analysis of data".

Consistent with the positivist paradigm, a quantitative research approach was adopted for this study. Maree (2007:145) maintains that a quantitative approach implies systematic and objective ways of using numerical data from a sample of a population to generalise the findings to that population. Creswell (2009:4) mentions that quantitative research approach provides a means of testing theories by examining the relationship among variables. These variables are measured by using an instrument, so that numbered data is collected and analysed using statistical techniques. In line with the quantitative research approach, a survey research was adopted for the study. According to Curtis and Curtis (2011:122-123), survey research is effective in identifying and examining general patterns without having to deal with the whole population. The approach was convenient for this study because it generated statistics

which were used in making statistical inferences about the targeted ECFs in the population in the MMM.

Survey research employs the use of questionnaire and structured interviews in generating statistics for use in making inferences (Dawson, 2009:14). The survey research method was adopted for this study. By surveying a sample, the researcher generated data relevant to the target population. Furthermore, the choice of survey research is also to take care of time and resource constraints that was associated with the study. Closed-ended questionnaire was used in collecting data from the sample drawn from the target population.

4.3.3 Sampling from the target population

The target population and sampling procedures applied in the study are discussed in this section.

4.3.3.1 The target population

Davies (2007:55), Sekaran and Bougie (2013:240) and Groves, et al. (2009:69) agree that population in a survey research refers to the category or group of elements for which the survey researcher wants to make inferences. The researcher used sample statistics for the entire group of people, events or things of interest that the researcher wishes to investigate. The target population for the study consisted of CIDB-registered Grade 1 to 5 ECFs in the MMM. The sample frame for the study was sourced from CIDB website since it contains information on all registered ECFs. The resultant sampling frame identified was 2529 registered Grade 1 to 5 ECFs in MMM. This number was considered too large for a census, given the timeframe available and financial constraints. Therefore, the decision was made to sample a reasonable number of ECFs. Sampling has several other advantages which makes its use very appealing in quantitative research. These are; lower cost, greater accuracy of results, greater speed of data collection, and availability of population elements (Blumberg, Cooper & Schindler, 2008:228), which justified its application in this study.

4.3.3.2 Sampling method

Due to the large geographical area covered by MMM, and given the financial and time constraints, it was impossible to include every population element in the study. Sekaran and Bougie (2013:242) indicate that it is better to use sample instead of the entire population due to cost, time and other human resource constraints. In addition, collecting data from sample instead of the entire population tends to reduce researcher fatigue, thereby leading to fewer errors in the data collection (Sekaran & Bougie, 2013:243). Furthermore, Neuman (2011:240) mentions that sampling is primarily used in quantitative studies like the current study to create a representative sample that will closely represent the features of interest in the population. Data from sample elements are then used to draw conclusion about the entire population (Blumberg, Cooper & Schindler, 2008:228).

Two major types of sampling design are known when it comes to sampling in research study. These are probability and non-probability sampling. Elements in probability sampling have some known chances of being selected as a sample subject whilst in nonprobability sampling the elements do not have a known chance of being selected as sample subjects (Sekaran & Bougie, 2013:245; Leedy & Ormrod, 2013:213).

Consistent with the adopted study design, probability sampling was used for this study. Probability sampling is noted to have several types that are used in research studies, which include simple random, systematic, stratified, cluster and panel sampling (Sekaran & Bougie, 2013:247; Leedy & Ormrod, 2013:213). Simple random sampling, which lies at the heart of all scientific research (Davies, 2007:58), was adopted by relying on the sample frame from the ECFs CIDB database. The sample frame included the target population of ECFs in the MMM area (Cooper & Schindler, 2011:364). Based on the simple random sampling approach, sample elements were selected randomly from the sample frame. This was done by assigning numbers to all the identified contractors from the sample frame, the researcher then wrote these numbers on pieces of paper and later placed them in container and drew 334 of them. This approach ensured that each element of the population was given an equal chance

of being included in the sample (Zikmund, et al 2013:396; Groves, et al 2009:103). Likert scale questionnaires were then delivered to each of the identified respondents.

The sample size and the reason for its use as well as the sampling technique adopted is discussed below.

4.3.4 Sample size

Mustafa (2010:151) mentions that the sample size selected by the researcher has direct bearing on the accuracy, time, cost and administration of the survey. In Mustafa's (2010:151) opinion, the sample size should be small enough to avoid unnecessary expenses but large enough to avoid intolerable sampling error. As stated earlier, the sampling frame for the study was 2529 registered Grade 1 to 5 ECFs. The appropriate sample size for the study was determined by the use of internet based sample size calculator (http://www.macorr.com/sample-size-calculator.htm). The calculated sample size of the study was 334 elements. The researcher therefore considered the sample size of 334 adequate for collecting data for the study.

4.3.5 Data collection

Lapan and Quartaroli (2009:284) suggest that any data collection method adopted by a researcher must fit the purpose, respond to the needs of the project and suit the time frame allocated to the project. According to Lowe, Thorpe and Easterby-Smith (2004:130), interviews, questionnaires, test/measures and observations are the four main ways of gathering quantitative data. Based on the research purpose and time frame, a Likert type questionnaire was used in the data collection (see Annexure A).

4.4 QUESTIONNAIRE DESIGN

The questionnaire was constructed after a thorough literature review and consultation with the study supervisor. The questions in the questionnaire were based on Likert scales (see Annexure A). The questionnaire items cover the research questions of the study. The questionnaire has clear instruction on how they should be completed. The

questionnaire was administered to the participants by the researcher personally and where necessary.

Pre testing of the questionnaire was done with 20 randomly selected ECFs. This was to test the user friendliness of the questionnaire, and to identify possible flaws in the questionnaire. Errors, omissions and ambiguities in the questionnaire were accordingly addressed after the pilot survey.

The questionnaire was divided into seven sections, which is from A to G detailed below.

Section A: Demographic data

This section required participants to provide information on the following basic demographic data. The demographic data covered the age, gender. Educational variables measured include highest level of qualification, highest level of education in project management, construction, and the highest level in business training. Other demographic variables include ethic Origin, role in the business and business ownership type. Respondents were also requested to provide data regarding their CIDB contractor grade, Years in Business Number of employees of the business and the sector that their projects are undertaken.

Section B: Awareness of core project management skills

In this section, participants were required to indicate the degree to which they are aware of the following project management skills. The scale used was (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). The variables measured in section include, accurate budgeting, correct scheduling, correct planning, clear details of deliverables, adequate risk management, meeting customer expectation, teamwork among team members, allocation of right people to activities, and appropriate project leadership.

Section C: Project management capability of ECFs

This section required participants to indicate the degree to which they are capable of using the following project management techniques. The scale used was (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). The variables of interest in this section were; being able to budget for project activities accurately, scheduling of project activities accurately, being able to perform risk analysis without difficulties, and easy identification of project deliverables

Section D: Main organisational structure of ECFs

In this section, participants were required to provide evidence of the type of organisational structure they have in place. The scale used was (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). This section required respondents to respond to how the following were done in their organisation; all major business decisions are made by the owner/manager, employee monitoring and control is done by owner/manager, day to day operations of the business is done by owner/manager, and the performance of activities/tasks in the business are grouped into functional areas

Section E: Use of project management techniques and process

This section of the questionnaire required participants to indicate their use of project management techniques and processes. This is done by indicating their degree of use based on the scale (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). In this section, the respondents responded to the following questions; the business currently initiates projects before work is started on them, the business usually plans all project activities before project execution, the business controls all project activities during the project execution, the business puts in place corrective measures during project execution should anything go wrong, and the business formally closes project activities on completion before handover to project owners.

Section F: Organisational culture and project management processes

In this section, participants were required to indicate the type of organisational culture they use in their business activities. In order to do this, participants had to provide response base on the scale (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). The variable measured in this section includes; Employees identify with the business as a whole rather than their job or professional expertise, Employees are encouraged to be innovative, Employees are encouraged to be risk seeking, Employees are encouraged to air conflicts and criticisms openly, The business is quick to respond to changes in the external environment, Management take into account the effect of decisions on the employees, Employees of the organisation are not tightly controlled by management.

Section G: Commitment to a long term project management processes

In order to determine long term commitment of ECFs to project management processes participants were asked to indicate degree of commitment in this section. To achieve this, the scale used was (4 – Strongly Agree, 3 – Agree, 2 – Disagree and 1 – Strongly Disagree). The variables considered in this section included; the business continuously sends its members to attend workshops on project management practices, the business participates in Project Management Professional Associations' activities, the business is strongly committed to improving project management skills of its team members, and the business has a strong long term view of improving the quality of its project delivery process.

4.5 ASSURING VALIDITY AND RELIABILITY OF THE QUESTIONNAIRE

The credibility, appropriateness and quality of the study needs to be maintained to ensure that the evidence, results and conclusions from the research process are valid and reliable. Kumar (2011:177) maintains that the credibility, appropriateness and quality of research are enhanced through questionnaire validity and reliability.

4.5.1 Ensuring validity

Leedy and Ormrod (2013:91) and Salkind (2014:173) posit that the validity of a measurement instrument means the extent to which the instrument measures what it is intended to measure. Four types of validity are identified by Leedy and Ormrod (2013:91). These are face validity, content validity, criterion validity, and construct validity. Based on the purpose of the study, only construct and content validity were taken into consideration.

4.5.1.1 Construct validity

Construct validity is considered by Salkind (2014:175) and Leedy and Ormrod (2013:92) to mean the extent to which the instrument measures a characteristic that cannot be directly observed, but is assumed to exist based on patterns in people's behaviour. In Bernard's (2013:49) opinion, construct validity implies a close fit between the construct that the instrument is supposed to measure and the actual observation.

To ensure construct validity of the instrument, intense literature review was done. The review led to the development of the questions that were used in the questionnaire. Additionally, the literature review led to the development of the theoretical and operational definitions of the variables which were used in the questions (Babbie, 2013:192).

4.5.1.2 Content validity

Leedy and Ormrod (2013:92) and Cooper and Schindler (2008:290) consider content validity as the extent to which a measurement instrument provides adequate coverage of the research questions guiding the study. Additionally, Cooper and Schindler (2008:290) indicate that a measurement instrument that contains a representative sample of the population of interest of the study has a good content validity. The same authors suggest the following to be considered in ensuring content validity of a measurement instrument: elements which constitute adequate coverage must first be agreed on, careful definition of the topic, the items to be scaled and the scale to be used, and content should not be defined narrowly. In ensuring the content validity of

the study, the suggestions from Cooper and Schindler (2008) were taken into consideration. In addition, the opinion of the research supervisor was also sought. Information from the literature review and the opinions of the research supervisor were therefore used in developing the measurement instrument that was used.

4.5.2 Ensuring reliability

Generally, reliability in social research is concerned with the consistency with which the measurement instrument measures what it intends to measure. Cooper and Schindler (2008:288) identify respondents, situational factors, the measurer and the instrument as sources that compromise instrument reliability, in ensuring that the reliability of the instrument is maintained. The questionnaire was administered during the times that were agreed upon with the respondents. In addition, sensitive issues were avoided in the questionnaire design. All conditions that could put any form of strain on the data collection were avoided, and respondent confidentiality was strictly maintained. Standardized and structured questions were used in the questionnaire design. In addition, the questions in the questionnaire were clear, straightforward and free of ambiguities. All of these efforts were intended to minimise respondent, interviewer-, situational- and instrument-related errors.

4.6 DATA ANALYSIS

R Software Version 3.3.1 was used to analyse data from the questionnaire. This was done with the guidance of an experienced statistician. The analysis of the data produced both descriptive and inferential statistics which were used differently to answer the research questions of the study.

4.6.1 Descriptive statistics

Descriptive statistics are used to summarise a body of data (Leedy & Ormrod, 2010:265; Sekaran & Bougie, 2013:282; Salkind, 2014:229) in the form of central tendency, amount of variability, and the extent to which different variables are associated with one another. In this study, the descriptive statistics produced were

frequencies, and percentages, which were displayed in tables, pie charts, and bar charts. The next chapter provides the details of the descriptive statistics used.

4.6.2 Inferential statistics

Inferential statistics allow researchers to generalise from small samples to large populations (Leedy & Ormrod, 2010:275; Salkind, 2014:229). According to Leedy and Ormrod (2010:275) and Salkind (2014:247) this method has two main functions; to estimate population parameter from a random sample, and to test statistical hypothesis.

Inferential statistical techniques are categorized into two namely parametric and non-parametric. The type to be used by a researcher is dependent on the data collected. Parametric statistics is used if data collected is scale (interval and ratio) while non-parametric statistic is used if data collected is categorical (nominal and ordinal). In this study as indicated earlier, the Likert scale was used to collect data which produced ordinal data (Leedy & Ormrod, 2010:275; Salkind, 2014:247). As a result, a non-parametric statistic in the form of Kruskal Wallis H test was used to test if there are statistically significant differences between the variables tested (Keller, 2012:757; Black, 2013:709). In addition, a post hoc test was performed in order to determine which groups differ from each other using the Kruskal Wallis H test. Details are available in the next chapter of the study.

4.7 ETHICAL CONSIDERATION

Cooper and Schindler (2011:32) and Sekaran and Bougie (2013:13) define ethics as norms or standards of behaviour that guide moral choices about behaviour and relationships between individuals. The consideration of ethical issues in research is to ensure that no one is harmed or suffers any adverse effects from research activities (Cooper & Schindler, 2011:32; Salkind, 2014:149). Leedy and Ormrod (2010:101) and Salkind (2014:149) highlight protection from harm, informed consent, right to privacy, and honesty with professional colleagues as the most critical categories that must be considered in research ethics. The adherence to these aforementioned ethical

considerations are the responsibility of the researcher involved in the study. The following ethical issues relevant to the study and considered by the researcher are discussed.

4.7.1 Privacy

Leedy and Ormrod (2010:102) indicate that any research involving human beings should respect the right to privacy of the participants. In addition, the research in no way should disclose how a particular participant responded to the questions. The questionnaire used to collect the data has no question about the location or identity of the participant. Therefore, respondent's privacy was not invaded by the researcher in anyway.

4.7.2 Informed consent

Kumar (2014:285) state that it is unethical to collect information without the knowledge of participants and their expressed willingness. Informed consent means that participants are made aware of the type of information wanted from them and why the information is being sought, as well as how the study will affect them directly and indirectly (Kumar, 2014:285). In addition, Leedy and Ormrod (2010:101) and Salkind (2014:151) mention that participants should be given the freedom to participate or withdraw from the study. To cater for this purpose, a covering letter was attached to the questionnaires detailing the purpose of the study.

4.7.3 Voluntary participation

Any participation in the study by participants should strictly be voluntary (Leedy & Ormrod, 2010:101). Participants involved in the study were given the freedom to decide if they want to participate or not in the study and were therefore not forced to take part in the study.

4.7.4 Confidentiality/ anonymity

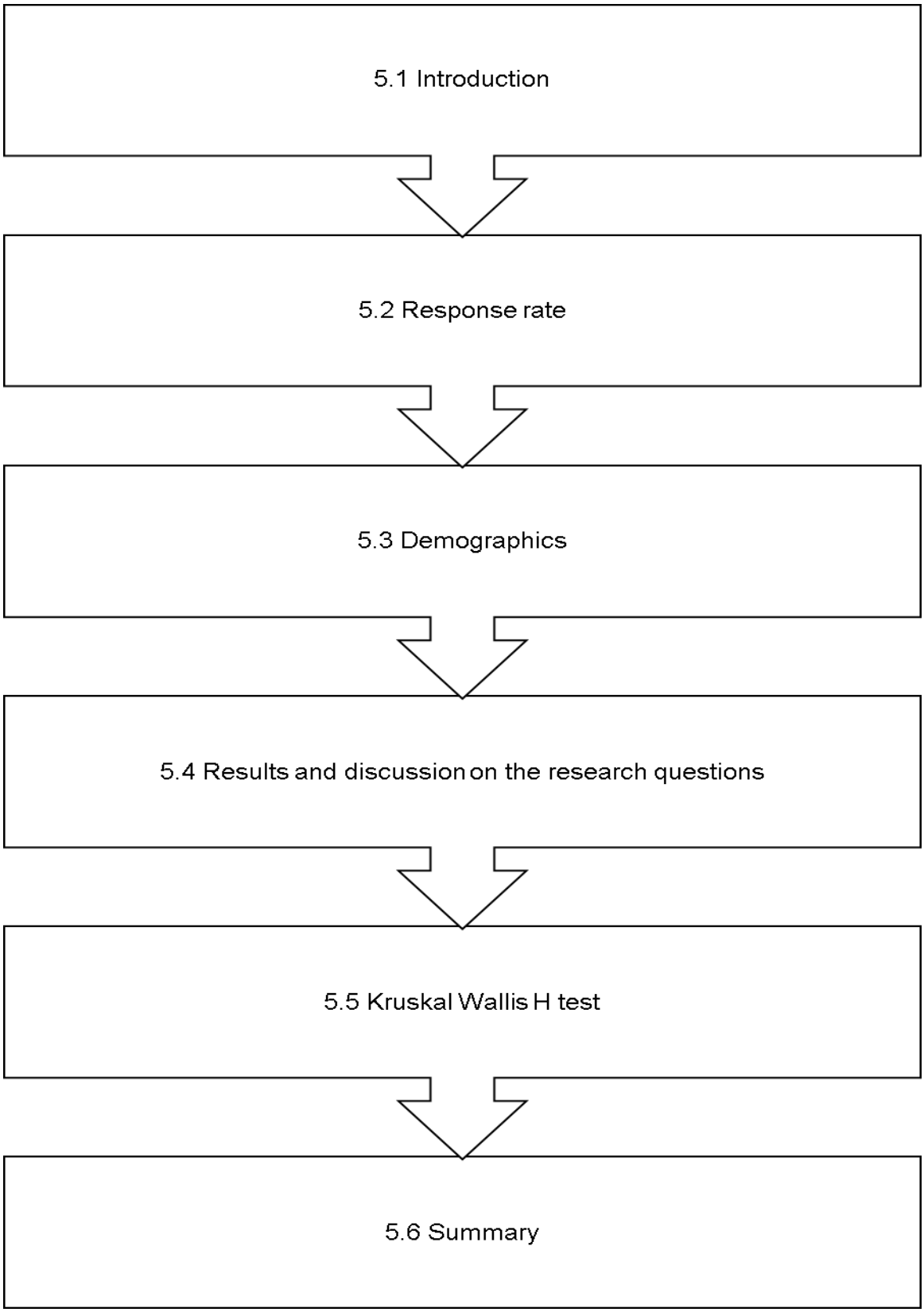
It is considered unethical to share information about participants with others for purposes other than the research (Kumar, 2014:286). Furthermore, Kumar (2014:286) indicates that it is unethical for individual respondent's information to be linked to them directly. In instances where one has to identify the study population to put the findings into context, Kumar (2014:286) advises that the information provided by the respondent should be kept anonymous. In this study, the data collected was only exposed to people who were involved in the research.

4.8 SUMMARY

This chapter detailed the research methodology that was followed in the study. In line with the positivist paradigm, quantitative research method was used. Data collection methods and the instrument used were also described in the chapter. In addition, data generation and analysis procedures were discussed. Ethical issues that were considered in the research process were also presented. Results and interpretation of those results are presented in the next chapter (Chapter 5) of the study.

CHAPTER 5: RESEARCH RESULTS AND DISCUSSIONS

Chapter outline



5.1 INTRODUCTION

The purpose of this study was to examine the formal project management adoption readiness of ECFs in the MMM. In the previous chapters, Chapter 1 provided a snapshot of the entire study, Chapters 2 and 3 dwelt on the literature review and while Chapter 4 was devoted to the methodology applied to the empirical study. This chapter presents the results of the study. The chapter is divided into the analysis of the data and subsequent discussion of the findings of the study.

5.2 RESPONSE RATE

Only 253 out of the 334 questionnaire items sent out were correctly filled and returned, representing a 76% response rate. Saunders, Lewis, and Thornhill (2012:267) posit that the ideal scenario is to have representative samples that can represent the population in which data is collected. Saunders, et al. (2012) further mention that it is also possible to have non response but a high response rate reduces the risk of non-response bias. The researcher believes the response rate of 76% can be considered high enough for this study (McBurney & White, 2010:256).

5.3 DEMOGRAPHICS

The demographic information concerns the age, gender, ethnic origin and highest level of qualification and highest level of education in project management of respondents. In addition, it also includes information on highest level of construction education, highest level of business training, role of the respondent in the business, and business ownership type. Furthermore, CIDB contractor grade level, number of years in business, number of employees of the business as well as the sector the business mainly undertakes projects were also gathered.

5.3.1 Age distribution of respondents

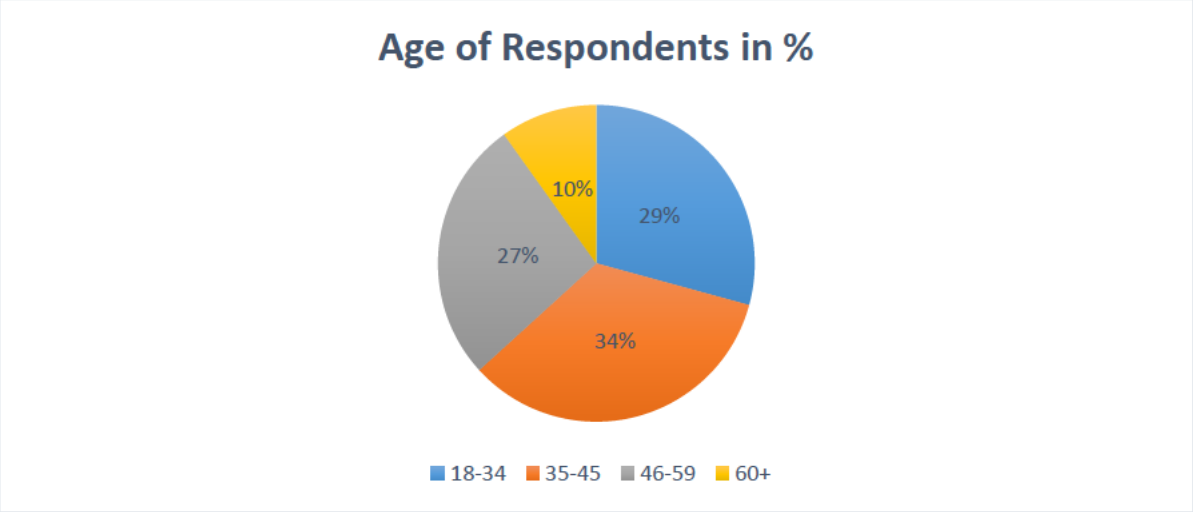


Figure 5.1 Age distribution of respondents

Figure 5.1 reveals that the vast majority (61%) of the ECFs surveyed belong to the 35-45 and 46-59 years old group. This implies that the youth (18-34 years) in the surveyed area representing 29% are not so much involved in emerging construction business in the MMM. Furthermore, this could also mean that the emerging contractor support programmes are not assisting in bringing the youth (15-34 years) in the surveyed area to the fore of employment creation. This result could be also be said to represent the current youth unemployment in the country which is indicated to be around 36.9% (Stats SA, 2015).

5.3.2 Gender of respondents

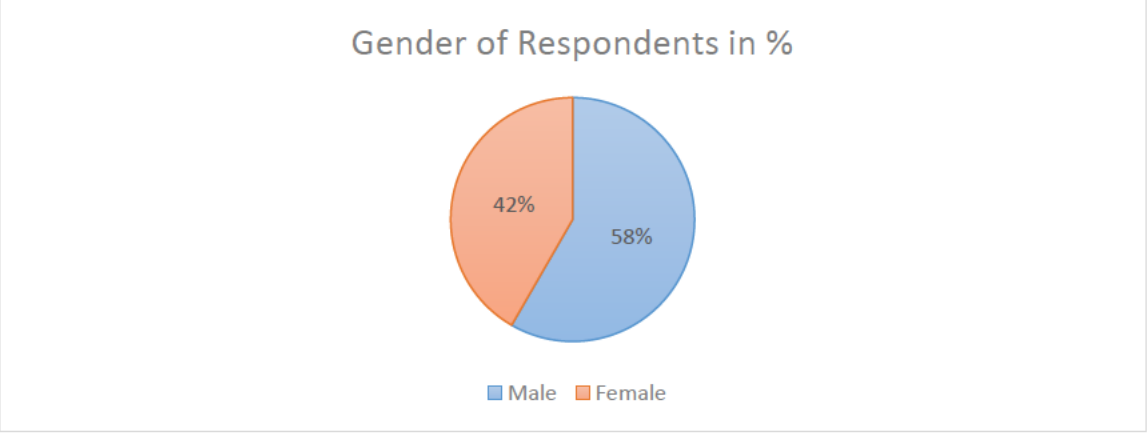


Figure 5.2 Gender of respondents

In terms of the gender of the ECFs surveyed, Figure 5.2 reveals that majority (58%) of the respondents are men whilst 42% of them are women. The moderate preponderance of men over women could be attributed to the fact that the construction business is mainly considered to be a male industry. This assertion is supported by Stat SA's construction industry report for 2014, where overall percentage of females involved in the construction industry was only 12% (Stats SA, 2015).

5.3.3 Educational level of respondents

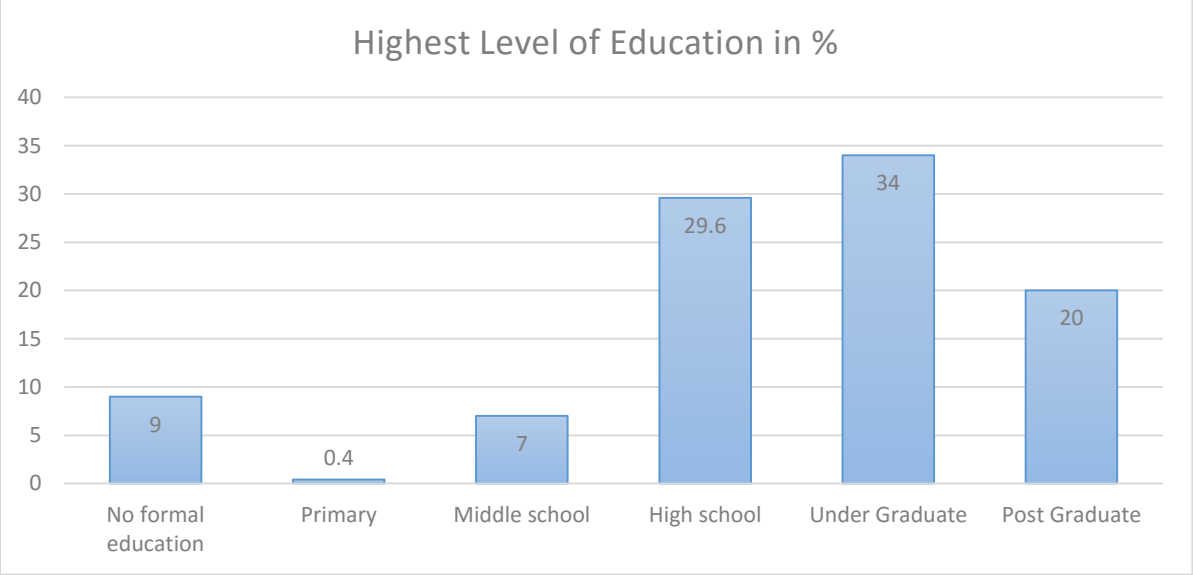


Figure 5.3 Educational levels of respondents

When it comes to the educational level of the respondents, Figure 5.3 shows that respondents with university level education are the majority (54%), and 29.6% of the respondents are high school leavers, while 7.4% having primary to middle school education and 9% have no formal education. This result is inconsistent with literature on the skill level ECFs owner/managers measured which shows that less than 50% of the ECFs owners/managers have the minimum formal qualification (National Diploma, BTech and higher qualifications) required to be involved in the construction industry (CIDB, 2011b). Moreover, a significant increase was reported in the skill level of the South African labour force in 2014 (108%) when compared with 1994. However, the disturbing aspect of the report is that only 18% increase in the skill black South African labour force was reported in 2014 when compared with 1994 (Stats SA, 2014).

Barring the inconsistencies in literature and the results of the study, the researcher is of the opinion that since most of the ECFs (91%) have some formal education, it should not be difficult to train those who do not have any education in project management which will make it easier for the introduction of project management in to their businesses.

5.3.4 Highest level of education in project management

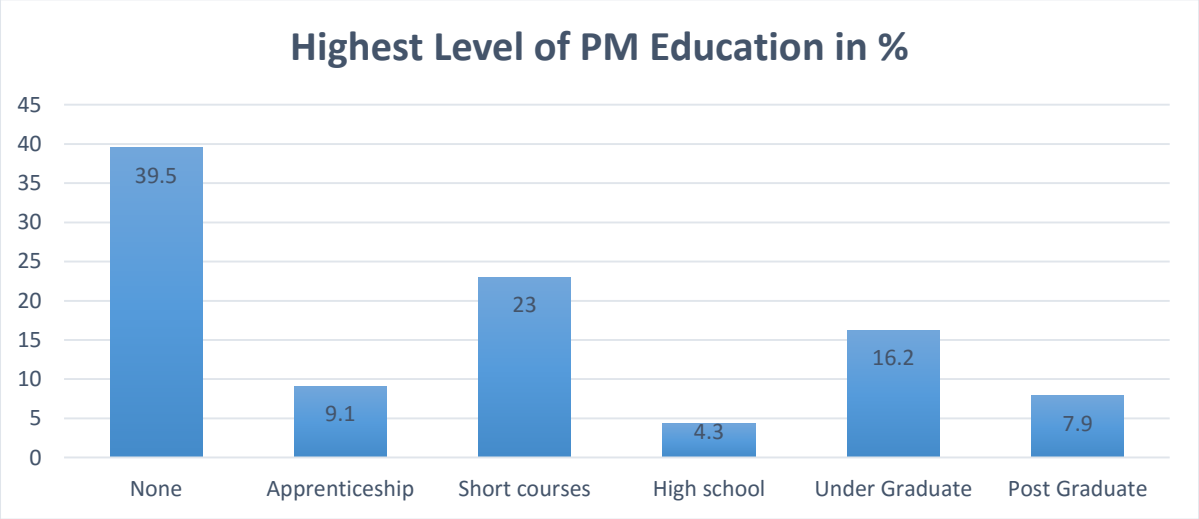


Figure 5.4 Highest level of project management education

In terms of the highest level of education in project management, Figure 5.4 shows that the greatest proportion (39.5%) of the ECFs surveyed had no formal education in project management, whereas 24.1% of them had some form of project management education at the undergraduate and post graduate levels. There were 36.4% of the respondents that had levels of project management education ranging from apprenticeship level to high school level. Although the majority (54%) have undergraduate and post graduate levels of education as indicated in Figure 5.3, the proportion (39.5%) of the ECFs with no formal education in project management should be worrying. This finding appears to be consistent with the literature on the poor performance of ECFs in terms of project execution which has been attributed to their lack of project management education (Lazarus, 2008: CIDB, 2011a; Thwala & Mofokeng, 2012:147). However, for the fact that most respondents have some form of

formal education there is some evidence of their readiness to adopt project management techniques and methodologies through training and workshops.

5.3.5 Highest level of education in construction

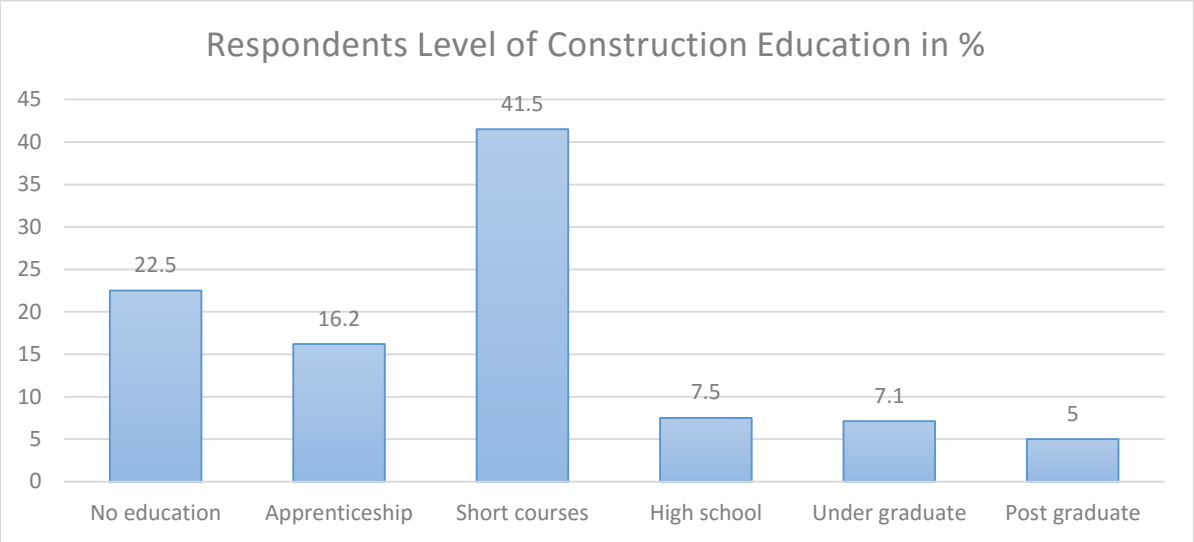


Figure 5.5 Highest level of education in Construction

Figure 5.5 indicates that substantial proportion (41.5%) of the respondents had their education in construction through short courses and 22.5 % do not have any education in construction. Only 12.1% had construction education at the undergraduate and post-graduate levels. This also implies that although the majority (54%) of the ECFs surveyed have post high school level of education, only a few of them had their education in construction. This could be due to the fact that individuals do not need to have construction certification to enter the construction industry if they are from the previously disadvantaged population group. However, literature shows that in cases where ECFs do not possess the requisite minimum formal education, their competence level is assessed based on experience in order for them to be accredited (CIDB, 2014). With about 40% of ECFs having some construction education, their overall readiness for project management adoption readiness could be in doubt. However, with their experience in the industry, it should not be too difficult to expose the other 60% to project management practices.

5.3.6 Highest level of education in business training

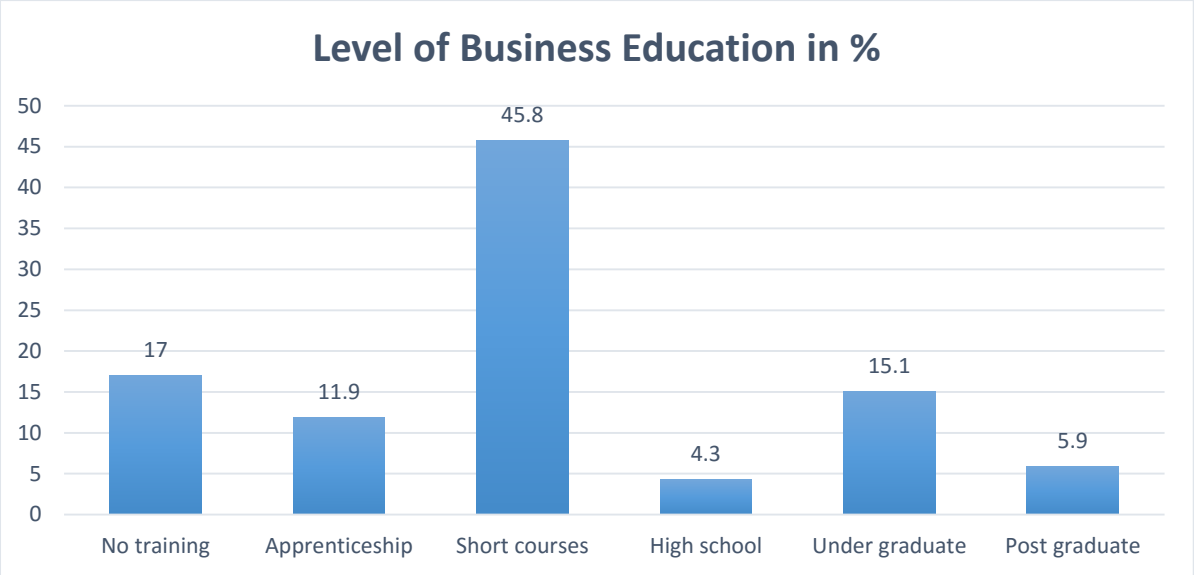


Figure 5.6 Business education level

When it comes to business education, Figure 5.6 shows that majority (71.1%) had some form of business education, ranging from short courses through post graduate level. There was 17 % that had no business education whilst 11.9% had their business education by way of apprenticeship. The intriguing part is that majority (45.8%) of the respondents who had business training ranging from short course to even post graduate level are those who had their business training by way of short courses. The implication is most of the respondents even though had under graduate and post graduate level of education, did not have any undergraduate or post graduate business training but were exposed to business education via short courses. The positive side of the picture is that majority of the ECFs (71%) received some form of business training. They are therefore to some extent ready, even though indirectly, for project management adoption.

5.3.7 Ethnic origin of respondents

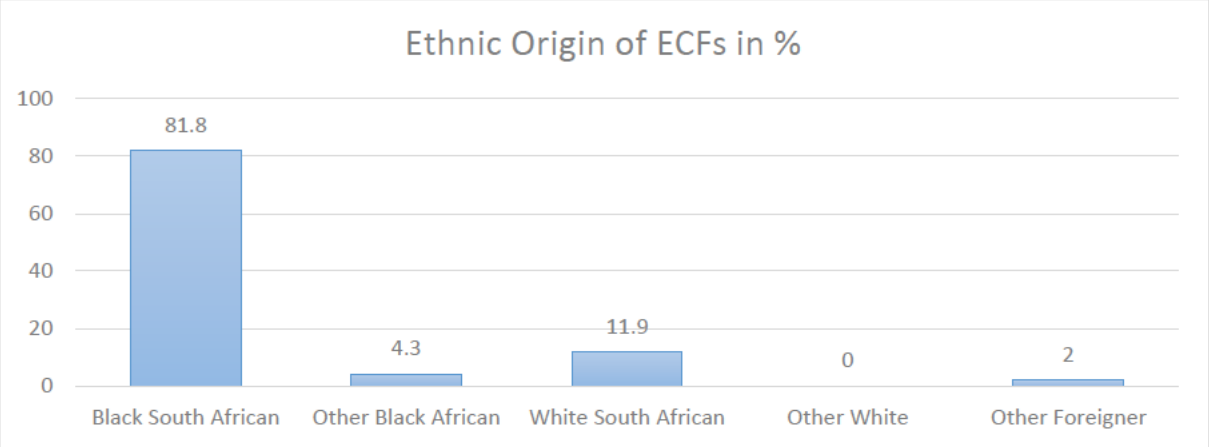


Figure 5.7 Ethnic origin of respondents

In terms of the ethnic origin of the ECFs surveyed, the vast majority (81.8%) are from the black South African population group whilst the White South African respondents represent just 11.9% of the sample. This is expected since the emerging construction programme targets individuals from the previously disadvantaged population groups. In addition, 4.3% and 2% of the respondents are other Black African and other foreigners respectively. The formal project management adoption drive must therefore target black South Africans since they form majority of the ECFs.

5.3.8 Role of respondents in the business

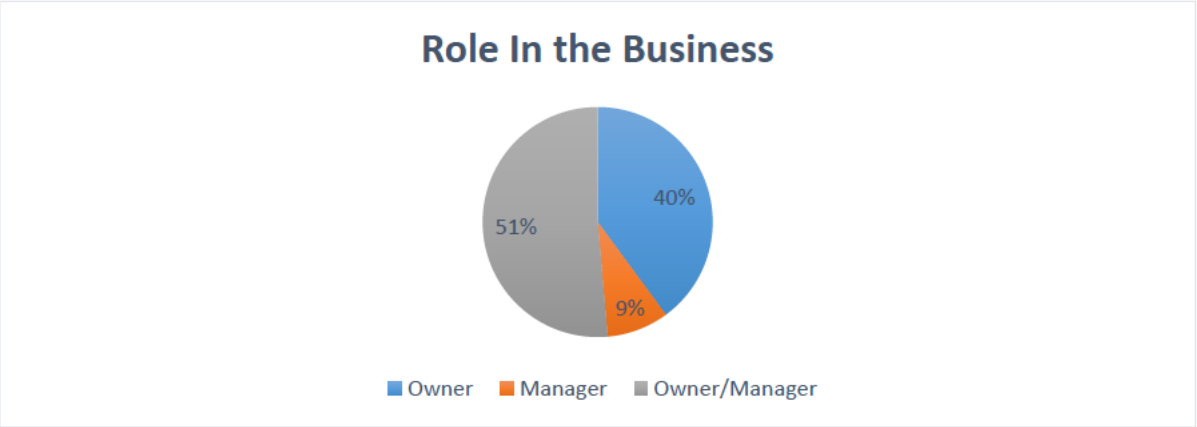


Figure 5.8 Role in business

Figure 5.8 indicates that 51% of the ECFs surveyed are owner-managed and 40% are the owners of the business whilst 9% are only managers of the business. This observation could imply that most of the businesses are small and the owners want to be in charge of the business without paying other people to handle the business for them. With about 90% owner-managed ECFs, it would be relatively easy to determine their project management adoption readiness. It was argued earlier (Ehlers & Lazenby, 2010) that small businesses with one-person manager could with relative ease adopt project management techniques/practices due to their managerial simplicity, organisational and structural flexibility.

5.3.9 Business ownership type

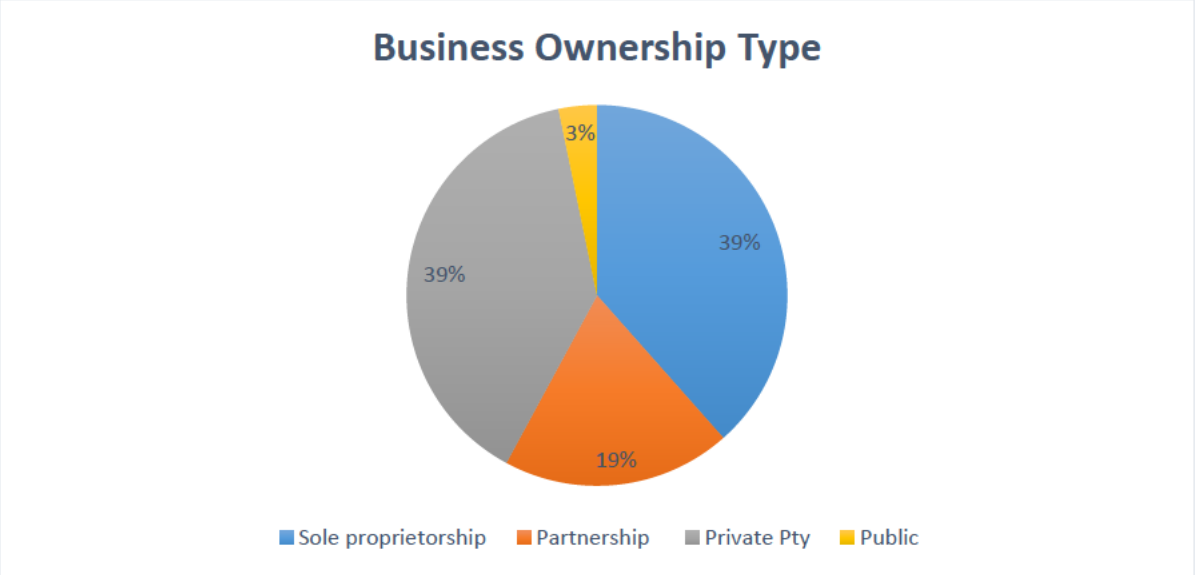


Figure 5.9 Business ownership type

In terms of business ownership type of ECFs surveyed, Figure 5.9 shows equal representation when it comes Sole Proprietorship (39%) and Private Pty (39%). There was 19% of the sample where ownership type was partnership whilst 3% of the ownership type was Public Company. The high percentage respondents preferring Sole Proprietorship as a business format could be due to the fact that this type of business ownership formation and management is done by a single person and does not have strict legal regulations in its constitution (Kuratko, 2016:207). With regard to the percentage opting for Private Pty, the researcher believes this is to enable them

have limited liability in terms of their business which is one of the advantages of such type of a company, whilst also avoiding the rigorous conditions and restrictions of public companies (Venter, et al, 2008:193). Again, the predominantly sole-proprietorship business format among the ECFs should make them easily adjustable to change, implying some degree of project management adoption readiness.

5.3.10 CIDB contractor grade

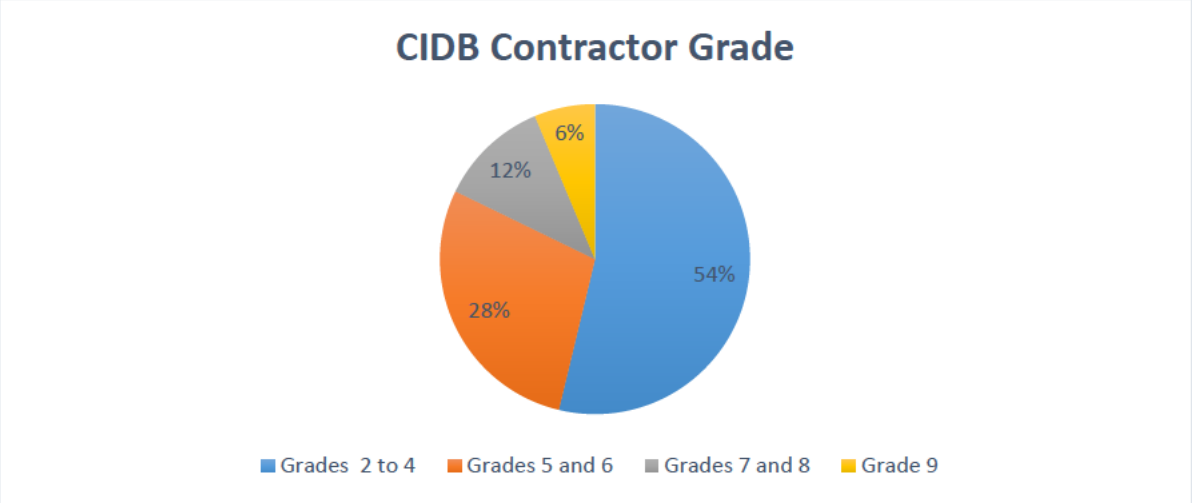


Figure 5.10 CIDB contractor grade

Figure 5.10 depicts the placing of the ECF respondents in various scale groupings on the CIDB contractor grading scale. The results show that majority of respondents (54%) fall within grades 2 to 4, 28% fall within grades 5 to 6 whiles 18% fall into grades 8 to 9 on the CIDB contractor grading scale. The fact that majority of the respondents fall within the grades 2 to 4 category is a well in line with the objective of the study which targets ECFs in terms of their project management adoption readiness.

5.3.11 Number of years in business

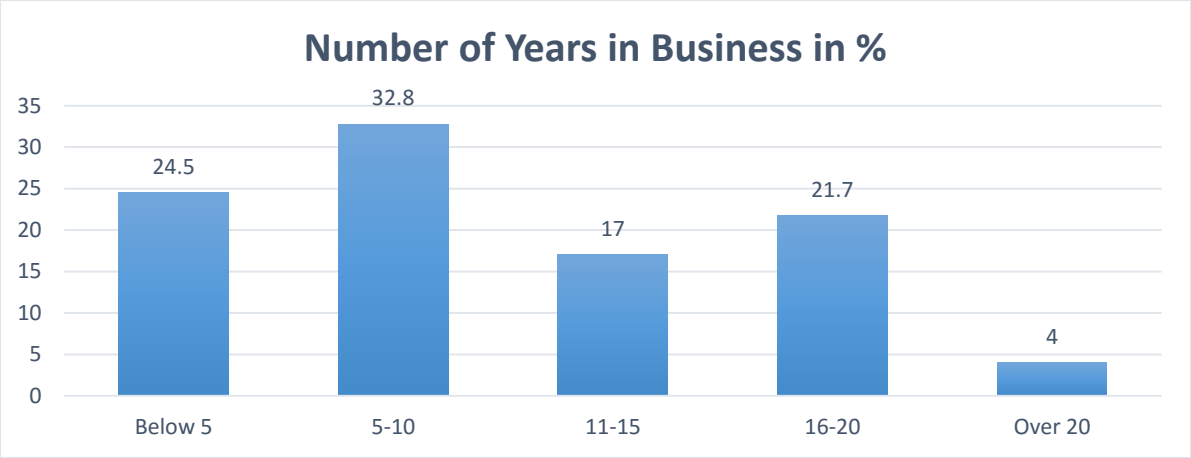


Figure 5.11 Number of years in business

According to Figure 5.11, the percentage of ECFs surveyed who have been in business for more than 10 years is 42.7%, whilst the majority (57.3%) have business in the business for 10 years or less. However, the percentage of the ECFs surveyed who have been in the business from 5-10 years' account for 32.8%, which is the highest category. This could therefore be considered to be laudable since it is often reported that majority of small businesses do not last for more than 2 years (Finmark Trust, 2011). In addition, this could also mean that formal project management adoption could further enhance the life span of these small businesses which will go a long way to aid government to achieve its goal of economically empowering individuals from the previous disadvantaged population groups in the long term.

5.3.12 Number of persons employed by the business

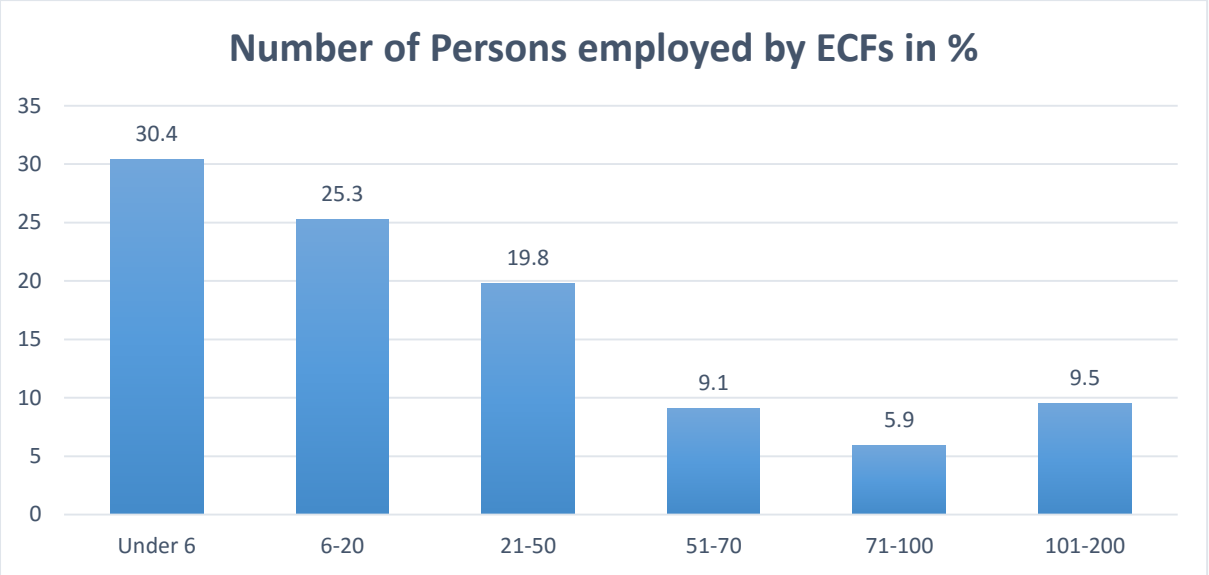


Figure 5.12 Number of persons employed by the business

Based on the South African definition of small businesses, Figure 5.12 above indicates that, most (75.5%) ECFs range from micro (employing fewer than 6), very small (employing fewer than 10 to 20) and small (employing fewer than 50) whilst 24.5% fall within the medium (employing fewer than 100 to 200) category (NSBA, 102 of 1996 Amended 2004). The implication here is that even though ECFs tend to employ fewer people, it could be much easier for them to adopt formal project management systems. This is because the introduction of the process would have to be done with only a few people at a time. It was earlier argued that with simple organisational structure where only small number of employees were involved, it could easier to introduce and manage new concepts (Pearce & Robinson, 2013; Ehlers & Lazenby, 2010)

5.3.13 Sector in which projects are mainly undertaken

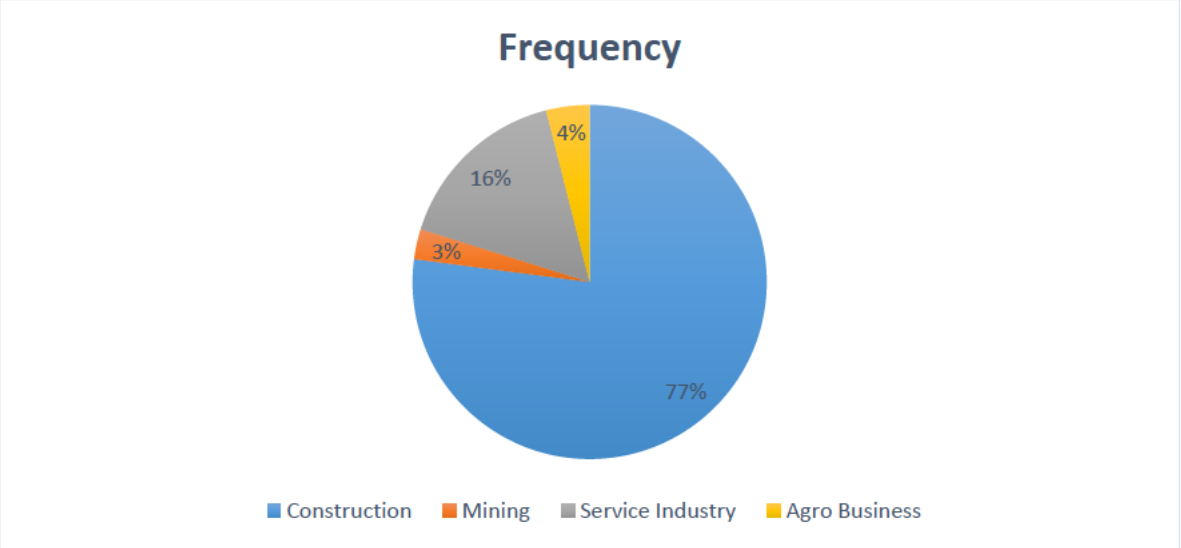


Figure 5.13 Sector in which projects are mainly undertaken

The survey revealed in Figure 5.13 that most ECFs (77%) undertake projects in the construction industry, and 16% are engaged in the service industry, whilst the remaining 3% and 4% are involved in the mining and agro business respectively. The indication of most (77%) ECFs undertaking mainly in the construction industry is expected and also consistent with the emerging construction industry agenda of the South African government (BBBEE Act 53 of 2003). Furthermore, this could also enable a quick policy direction in the adoption of project management techniques and tools by ECFs since activities in the construction industry are considered to be projects (Larson & Gray, 2011). Thus, for these activities to be fulfilled successfully, there is the need for formal project management adoption and application by the ECFs (Maley, 2013; Larson & Gray, 2011; Meredith & Mantel, 2010).

5.4 RESULTS AND DISCUSSIONS BASED ON THE RESEARCH QUESTIONS

This section presents the results of the statistical analysis and discussions based on the research questions investigated in the study. Frequency tables, percentages and cross tabulations were used to discuss the results.

5.4.1 The extent to which ECFs consider project management a core skill

Table 5.1 project management as a core skill

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Accurate budgeting	175	69	75	30	0	0	3	1
Correct scheduling of task	180	71	70	28	0	0	3	1
Correct planning of project activities	171	68	79	31	0	0	3	1
Detail of deliverables	184	73	69	27	0	0	0	0
Adequate risk management	138	55	111	44	1	0	3	1
Meeting customer expectation	164	65	86	34	0	0	3	1
Team work	188	74	62	25	0	0	3	1
Adequate communication	183	72	70	28	0	0	0	0
Successful project execution	167	66	85	34	0	0	1	0
Project leadership	161	64	92	36	0	0	0	0

In terms of the extent to which the ECFs surveyed consider project management skills as core skills, Table 5.1 above shows the majority (99%) of respondents strongly agree/agree that project management skills are core skills in order to successfully undertake their project activities. A few of them (1%) were of the view that project management skills are not core skills in delivering successful projects. The vast majority of the respondent ECFs indicated they consider project management a core skill in order to have successful project outcomes. Reports have shown ECFs actually do not use project management techniques and tools in undertaking their projects activities, which is considered to have resulted in unsuccessful projects by ECFs

(CIDB, 2011a). However, the researcher believes the vast majority (99%) of ECFs indicating project management as a core skill in undertaking successful project could be attributed to the fact that majority (54%) of the ECFs (see Figure 5.1) were reported to have had higher education ranging from under graduate to post graduate level. In addition, it could also be attributed to the fact that 60.5% of the ECFs surveyed (see Figure 5.4) reported having project management education from apprenticeship to post graduate level. Furthermore, Kerzner (2013:2) argued that unwillingness of individuals to accept changes when it comes to adapting to new environment could be a huge factor in using a new approach. This, the researcher believes could be the reason why ECFs surveyed considered project management a core skill yet they do not use the techniques and skills in their project endeavours.

5.4.2 Level of project management skills possessed by ECFs

Table 5.2 level of ability of project management skills possessed by ECFs

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Ability to budget	118	47	109	43	26	10	0	0
Schedule project activities	123	49	93	37	36	14	1	0
Perform risk analysis	136	54	88	35	28	11	1	0
Deliverables identification	144	57	78	31	30	12	1	0

Considering the project management level of respondent ECFs, Table 5.2 shows that generally the ECFs surveyed have high levels of project management skills. On the ability to budget for project activities, the majority (90 %) strongly agree/agree that they are able to budget for their project activities without any difficulties, whilst 10% disagree they are able to budget for project activities without any difficulties. In terms of ability to schedule project activities, 86% of the respondents indicate (strongly agree/agree) they are able to perform these activities without any difficulties and 14 %

indicate (strong disagree/disagree) they are able to perform these activities without difficulties. When it comes to the performance of risk analysis, 89% of the ECFs surveyed strongly agree/agree they perform this activity without any difficult whilst 11 % strongly disagree/disagree they are able to perform risk analysis without difficulty. With regard to identification of project deliverables, majority of the respondents (88%) strongly agree/agree they are able to identify all project deliverables before the commencement of projects they undertake, and 12% of the ECFs surveyed strongly disagree/disagree they are able to identify all project deliverables before commencement of their projects. In contrast, the results as shown in Table 5.2 is inconsistent with CIDB report on the performance of ECFs in undertaking projects.

5.4.3 Main organisational structure of ECFs

Table 5.3 Main organisational structure of ECFs

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Decisions made by owner/manager	168	66.4	69	27.3	13	5.1	3	1.2
Employee monitoring and control is done by owner/manager	119	47	113	45	21	8	0	0
Day to day operations is done by owner/manager	98	38.7	105	41.5	45	17.8	5	2
Activities are grouped into functional areas	124	49	117	46.3	11	4.3	1	0.4

The CIDB report indicates that ECFs are not able to use project management techniques and tools, and are not able to deliver projects successfully (CIDB, 2011a:7). This could be a probable factor for their poor project delivery outcomes. It

is therefore critical to determine the readiness of ECFs in adopting project management techniques/practices.

Table 5.3 shows that 93.7% of the respondents strongly agree/agree that all major business decisions are made by the owner/manager, whilst a small number (6.3%) strongly disagree/disagree that decisions are made by owner/manager. This is not surprising since majority of the ECFs surveyed indicated their business ownership type to be sole proprietorship (Figure 5.9). In terms of monitoring and control of employees, 92% of the respondents strongly agree/agree that this is done by the owner/manager whilst 8% indicate (strongly disagree/disagree) that employee monitoring and control is not done by owner manager. This result is expected since the survey results (Figure 5.9) show that most of the ECFs have sole proprietorship business formats. In addition, the day-to-day operations of the business is mostly done by the owner/manager since 80.2% of the respondents strongly agree/agree, with 19.8% representing respondents who strongly disagree/disagree. As indicated in Table 5.3, 95.3% of the respondents strongly agree/agree that the performance of activities in the business is grouped into functional areas. However, 4.7% of the respondents strongly disagree/disagree that work is performed in the business's functional areas. Although this assertion deviates from the typical structure of ECFs which is simple-entrepreneurial structure, the unique nature of construction business requires some degree of compartmentalisation, hence the grouping of activities into functional areas. However, ECFs could still be considered to operate mainly based the simple-entrepreneurial structure (Ehlers & Lazenby, 2010:324). In this type of organisational structure, all business decisions are made by owner/manager of the business. This assertion was discussed in section 3.11.3 of Chapter 3. According to the findings then, since ECFs exhibit some degree of functional compartmentalisation yet remain simple-entrepreneurial structurally, these construction organisations could be said to possess some level of readiness for project management adoption.

5.4.4 Extent of use of project management techniques and processes by ECFs

Table 5.4 Extent of use of project management techniques and tools

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Project initiation	137	54.1	92	36.4	16	6.3	8	3.2
Project planning	138	54.5	85	33.6	30	11.9	0	0
Controls business activities	120	47.4	111	43.9	22	8.7	0	0
Corrective measures in place	123	48.6	127	50.2	3	1.2	0	0
Formally closes project	116	45.8	108	42.7	25	9.9	4	

ECFs' application of project management techniques and processes

As shown in Table 5.4, majority of the ECFs surveyed use project management techniques and process in their project endeavour. According to Table 5.4, an average of 92% of the respondents strongly agree/agree that they use the five project management techniques and processes that were measured. On average, 8% of the respondents strongly disagree/disagree that they use the project management techniques and processes that were measured. This result is not consistent with CIDB position which argues that most ECFs are not able to undertake projects successful because of either inadequate or lack of project management knowledge and skills (CIDB, 2011). This contradictory situation requires further interrogation to determine the actual state of readiness of ECFs for project management techniques/tools adoption.

5.4.5 Organisational culture of ECFs

Table 5.5 organisational culture of ECFs

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Employees see business as whole	107	42.3	133	52.6	10	3.9	3	1.2
Innovative	128	50.6	110	43.5	12	4.7	3	1.2
Risk seeking	74	29.2	136	53.8	26	10.3	17	6.7
Speak conflicts and criticisms	85	33.6	119	47	32	12.7	17	6.7
Responds to external environmental changes	114	45.1	129	51	8	3.2	2	0.7
Management considers effects of decisions on employees	117	46.2	128	50.6	4	1.6	4	1.6
Employees are not tightly controlled by management	61	24	124	49	33	13	35	14

Employees' identification with the organisation

In terms of the organisational culture of the ECFs surveyed, 95% (Table 5.5) of the respondents identify with the business as a whole whilst 5% strongly disagree/disagree that they identify with the business as whole. This finding should facilitate quick adoption of project management methodologies since most employees identify with their organisations and might therefore be quite ready for change and less resistant to change.

Organisational innovativeness

When it comes to innovation within the business, 94% of the respondents strongly agree/agree that they are encouraged to innovate whilst 6% strongly disagree/disagree with the notion. (Table 5.5)

Risk taking

In Table 5.5, it is reported that 83% of the participants strongly agree/agree that they are encouraged to take risks whilst 17% strongly disagree/disagree that employees are encouraged to take risks. Innovativeness and risk-taking orientations are entrepreneurial characteristics (Kuratko, 2014) which favour experimentation and adoption of new ways of doing things. To some extent therefore, since ECFs exhibit high measures of innovativeness and risk-taking, they should be significantly ready for adopting new project management approaches.

Conflicts and criticism within the organisation

There were 81% of the respondents (Table 5.5) who indicated (strongly agree/agree) they were encouraged to air conflicts and openly criticise within the business environment and 19% of the participants strongly disagree/disagree they were encouraged to air conflicts and criticise openly. Open discussions are critical for introducing new methods or approaches and ECFs should be no exemption to readiness determination and eventual adoption of project management methodologies.

Response to external environmental changes

Majority of the respondents (96%) in Table 5.5 strongly agree/agree that the business is quick to respond to any change within its external environment whilst 4% strongly disagree/disagree that the business is quick to respond to changes in the external environment.

Implications of management decisions for employees

Table 5.5 shows that substantial proportion of the respondents (97%) strongly agree/agree that management of the business take into account the effect of their decisions on the employees. Hence the decision as to whether or not to adopt project management methodologies would invariably affect the employees of ECFs. There would therefore be the need for effective consultation of these employees before any change is affected.

Control of employees by management

When it comes to employee control in the ECFs surveyed, 73% of the participants strongly agree/agree that they are not tightly controlled by management, however 27% of the respondents strongly disagree/disagree that they are not tightly controlled by management. Consistent with the discussion in section 3.11.2 of Chapter 3, it could be concluded that the ECFs surveyed have a unique cultural orientation in their organisation. In addition, this behaviour could be indicative of the way of life of the owner/manager since in smaller organisations, the culture is considered to be what the owner/manager exhibits (Section 3.11.2). However, the effectiveness of the organisational culture in aiding ECFs' adoption and implementation of formal project management techniques and tools is dependent on the strength of the culture (Ehlers & Lazenby, 2010:294). The organisational culture of ECFs surveyed could be considered to be strong since their response as shown Table 5.5 depict strong organisational culture (Ehlers & Lazenby, 2010:295; Larson & Gray, 2014:87). The strong organisational structure of ECFs surveyed should thus aid in successful adoption and implementation of project management techniques and tools.

5.4.6 Commitment to long term project management implementation

Table 5.6 Commitment to long term project management implementation

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	%	Freq	%	Freq	%	Freq	%
Attendance of project management workshops	65	25.7	148	58.5	31	12.2	9	3.6
Participation in project management Association activities	54	21.3	155	61.3	25	9.9	19	7.5
project management skills improvement	132	52.2	102	40.3	11	4.3	8	3.2
Long term view of improving quality of delivery process	118	46.6	132	52.2	3	1.2	0	0

As shown in Table 5.6, 84% of the respondents strongly agree/agree that the business continuously sends employees to attend project management practice workshops whilst 16% strongly disagree/disagree with the notion. In terms of participating in project management professional association activities, 83% of the respondents strongly agree/agree that the business participates in these activities, whilst 17% strong disagree/disagree that the business participates in the project management professional association activities. As far as commitment of the business to skill improvement of employees is concerned, a large proportion of the respondents (92.5%) strongly agree/agree that the business is committed in that direction, whilst a small percentage (7.5%) of the respondents strongly disagree/disagree that the business is committed to skill improvement of employees.

On the long term view of improving quality of project delivery, almost all the respondents (99%) strongly agree/agree that they have the long term desire to

improve the quality of their project delivery process. The result as shown in Table 5.6 is consistent with the expectation from CIDB with regard to the performance of ECFs. According to CIDB's mandate (Act No. 38 of 2000), it is supposed to continuously strive to improve the performance of all players in the construction industry. In this regard, ECFs are assessed regularly based on competence and experience to help enhance the construction industry performance. ECFs who fall short tend to lose their accreditation to undertake activities in the industry, thus, commitment to long term project management implementation should be key consideration for ECFs (CIDB, 2011b). In addition, Figure 5.4 (23%) and Figure 5.5 (41.5%) show that ECFs surveyed had their project management education and construction education by way of short courses, which could be inferred to be a way of improving their project performance when considered in the direction of their readiness and long term project management implementation.

5.5 KRUSKAL WALLIS H TEST

The Kruskal Wallis H test, which is also known as one-way ANOVA is a rank-based non-parametric test which is used to determine if there are statistically significant differences between two or more groups of an independent variable, using a continuous or ordinal dependent variable (Keller, 2012:757; Black, 2013:709). The Kruskal Wallis H test is able to establish if there are statistically significance differences between two or more group of independent or dependent variables (Keller, 2012:757; Black, 2013:709). It is however not able to specify the specific group of the independent variable that is statistically significantly different from the other(s). Therefore, in order to determine which groups differ from each other a post hoc test was performed. A finding is deemed statistically significant if the probability that the result could have randomly occurred is less than 5 out of 100. Thus, a significant test result is concluded if $p < 0.05$.

A Kruskal Wallis H test was conducted to determine if the awareness of core project management skills was different for the groups with educational level in project management, educational level in construction, type of business ownership and the sector where ECFs mainly undertake projects.

5.5.1 Project management education vs. project management skills awareness

Table 5.7 project management education vs. project management skills awareness

	Degrees of freedom	Chi-Square value	P-value
Accurate budgeting	5	28.808	2.529e-05
Correct scheduling of task	5	19.404	0.001616
Correct planning of project activities	5	35.381	1.263e-06
Clear detail of deliverables	5	16.5	0.005553
Adequate risk management	5	22.693	0.0003863
Meeting customer expectation	5	16.443	0.005687
Teamwork	5	31.034	9.224e-06
Adequate communication	5	21.382	0.0006858
Successful execution of projects	5	48.246	3.164e-09
Appropriate project leadership	5	17.548	0.00357

As show in Table 5.7 above, a Kruskal Wallis H test was conducted to explore the impact of level of project management education on the awareness of core project management skills in the surveyed ECFs. The respondents were divided into groups according to their level of project management education which included no education, apprenticeship, short courses, high school, under graduate, and post graduate. The results of the Kruskal Wallis H test on the core project management skills yielded significant variation among the different levels of project management education as shown in Table 5.7 above since all the p-values are less than .05.

In order to identify groups with the statistically significant differences, a post hoc test was performed. The consequent result shows that there is statistically significant difference in accurate budgeting, χ^2**(5, 253) = 28.808, p < .001.** The following results are reported:

i. The results show that the groups which differed significantly regarding accurate budgeting being key in achieving successful project outcomes are the respondents with no level of project management education from those with apprenticeship, high school, under graduate and post graduate.
ii. Those with apprenticeship in project management from those with short courses, high school, undergraduate and post graduate degrees.
iii. Respondents who took short courses in project management from those with high school, undergraduate and post graduate degrees.
iv. Respondents with high school of project management education from those with undergraduate and post graduate degree qualification.

This result suggests that ECFs without project management education do not consider accurate budgeting as a core project management skill whilst ECFs with certain level of project management education consider accurate budgeting a core project management skill. This therefore could imply that individuals who have project management education are likely to readily adopt and implement project management techniques and tools because of their educational level (Kloppenborg, 2012:5).

In terms of the importance of correct scheduling of tasks in achieving successful project execution, there is a statistically significant difference, χ^2**(5, 253) = 19.404, p = .002.** The implications are presented below.

i. The respondents with no level of education in project management have different opinions from those with high school and undergraduate degrees.
ii. The ECFs surveyed with apprenticeship and high school education in project management also differ from short course.
iii. It is also reported that those with high school project management education differ from those with undergraduate and post graduate project management education degree as well.

This implies that the level of project management education is necessary if ECFs are to adopt and use project management techniques and tools in their project endeavour.

In addition, this assumption is consistent with Kloppenborg's (2012:5) assertion of the importance of the relevant skills required for a person to be able to effectively manage and lead in project environment.

The results show that there is a statistically significant difference in correctly planning of project activities, χ^2**(5, 253) = 35.381, p < .001**. From the analysis, it is established that it is very important to correctly plan project activities in order to have a successful project outcome. However, the results have established that various groups of respondents with different levels of education in project management have diverse views.

i. Respondents with no education in project management significantly differed from those with apprenticeship, under graduate and post graduate with regards to correct planning of project activities.
ii. Those with apprenticeship also significantly differed from those with short courses and high school, short courses.
iii. It is also reported that those with high school project management education differ from those with short courses, undergraduate and post graduate project management education degree.

The implication here is that individuals (ECFs) who have certain level of knowledge in project management education and skills would easily consider project management techniques and tools in their project activities than those without any project management education or knowledge and might therefore not be able to use these techniques and tools (Larson and Gray, 2014:17). Furthermore, this results also shows that project management skills and knowledge are relevant to ECFs in order them to adopt and use project management techniques and tools can be acquired (Kloppenborg, 2012:5)

It is reported in the study that there is a statistically significant difference in clear details of all deliverables being critical for successful execution of projects, χ^2**(5, 253) = 16.5, p = .006**.

i. The post hoc tests indicated a significant difference between respondents with no level of education in project management with those with apprenticeship and under graduate degrees when considering whether clear details of all deliverables of the project is critical for successful project outcomes.
ii. Also, there is a significant difference between ECFs who have apprenticeship project management education with short courses and undergraduate project management education degree.

The results therefore show that for ECFs to consider the adoption and further implementation of project management techniques and tools, their project management education and knowledge level are key in order for ECFs to identify the key techniques and tools to apply in the process (Kloppenborg, 2012:5; PMI, 2008:6).

The Kruskal Wallis H test showed that there was a statistically significant difference in adequate risk management, χ^2**(5, 253) = 22.693, p < .001**.

i. The post hoc result indicates a significant difference between respondents with no education in project management; and those with apprenticeship, under graduate and post graduate project management education degrees.
ii. The result also showed that respondents with apprenticeship significantly differed from those with short courses and high school project management education with regards to adequate risk management during project activities.
iii. In addition, it is reported in the study that respondents with short courses project management education significantly differed from those with high school, under graduates and post graduates project management education.

This result is consistent with literature on the need for individuals (ECFs) to have adequate project management education, skills and knowledge in order to manage and lead in project environments effectively (Kloppenborg, 2012:5; project management, 2008:6)

In terms of meeting customer expectation, the table (see Table 5.7) shows that there is a statistically significant difference in meeting customer expectation χ^2**(5, 253) = 16.443, p = .006**.

i. The post hoc test result indicates a significant difference between respondents with no education in project management and those with short courses and high school project management education.
ii. The post hoc test further shows respondents with apprenticeship significantly differed from those with short courses and high school project management education.
iii. In addition, respondents with short courses project management education significantly differed from those with high school and under graduate project management education degree.

This result implies that ECFs who do not have project management education would not consider customer expectation which is a key component in adopting and implementing project management techniques when compare to ECFs who have certain level of project management education (Philips, 2012:4).

It is reported in Table 5.7 above that there is a statistically significant difference in team work among employees, χ^2**(5, 253) = 31.034, p < .001**.

i. The post hoc test result indicates a significant difference between the respondents without level of education in project management from those with apprenticeship, high school, under graduate degrees and post graduate degrees.
ii. Respondents with apprenticeship and short courses project management education significantly differed from those with short courses, high school and post graduate project management education degrees.

The implication here is that ECFs who do not have adequate project management education when compared to their counterparts with project management education

might not consider team work as a skill needed in delivering successful project outcomes by adopting and using project management techniques and tools (Kloppenborg, 2012:5; Larson & Gray, 2014:17).

The study has revealed that there is a statistically significant difference in adequate communication among team members χ^2**(5, 253) = 21.382, p < .001**.

The following are reported from the post hoc result:

i. Significant difference exists between respondents without education in project management from those with apprenticeship and high school project management education.
ii. Significant difference exists between respondents with short courses project management education from those with high school and under graduate project management education degrees.
iii. In addition, significant difference exists between respondents with high school project management education from those with under graduate and post graduate project management education degrees.

This result is consistent with literature which argues that for effective management and leading in the project environment individuals need to possess the right mix of project management education, skills and knowledge in order to be able to adopt and implement project management techniques and tools (Pinto, 2013:28; Kloppenborg, 2012:59).

The Kruskal Wallis H test shows that there is a statistically significant difference in successful execution of projects when the right people are allocated to various projects χ^2**(5, 253) = 48.246, p < .001**.

The post hoc test indicates the following:

i. Significant difference exists between respondents without education in project management from those with apprenticeship, high school, under graduate degrees and post graduate project management education degrees.
ii. Respondents with apprenticeship significantly differed from those with short courses and high school project management education.
iii. Respondents with short courses significantly differed from those with under graduate degrees and post graduate project management education degrees.
iv. ECFs surveyed with high school project management education significantly differed from those with under graduate and post graduate project management education degrees.

This results suggest that ECFs without project management education do not consider allocating the right people to project activities as relevant in successful delivery of projects. However, literature has shown that individuals who have to manage and lead projects require the right mix of skills and conducive organisational structure in their endeavour (Pinto, 2013:28).

It is reported in Table 5.7 that there is statistically significant difference in appropriate project leadership χ^2**(5, 253) = 17.548, p < .001**.

The post hoc results indicate the following:

i. Significant difference exists between respondents without education in project management from those with apprenticeship and under graduate project management education.
ii. Respondents with apprenticeship in project management significantly differed from those with high school, short courses and under graduate project management education degrees.

The implication of these results are that, it will be easy for ECFs with certain level of project management education to consider leadership as key in delivery successful

project outcomes whilst ECFs without any project management education could consider it otherwise (Larson & Gray, 2014:17; PMI, 2008:6).

5.5.2 Construction education vs. project management core skills awareness

Table 5.8 construction education vs. core project management skills

	Degrees of freedom	Chi-Square value	P-value
Accurate budgeting	5	12.223	0.03185
Correct scheduling of task	5	6.6126	0.2511
Correct planning of project activities	5	3.4107	0.6369
Clear detail of deliverables	5	6.4577	0.2642
Adequate risk management	5	13.065	0.02278
Meeting customer expectation	5	39.232	2.133e-07
teamwork	5	14.458	0.01295
Adequate communication	5	48.662	2.602e-09
Successful execution of projects	5	7.92	0.1607
Appropriate project leadership	5	26.715	6.482e-05

From the results in Table 5.8, statistically significant differences exist for all the factors except correct scheduling of task, correct planning of project activities, clear details of deliverables and successful execution of projects in each of the project management core skills between the groups with educational qualification in construction.

In view of this, post hoc test was conducted to determine among the groups that show statistically significant differences ($p < .05$) to show how they differ.

In terms of accurate budgeting, Table 5.8 shows that there is a statistically significant difference, χ^2**(5, 253) = 12.223, p = .032**.

The following were reported based on the post hoc result:

i. Significant difference exists between respondents without education in construction from those with apprenticeship and post graduate project management education.
ii. ECFs with apprenticeship project management education differed significantly from those with short courses, high school, under graduate and post graduate project management education.

The implication here is that ECFs without education in construction do not consider accurate budgeting as a core project management skill therefore might readily use it. However, construction activities are project in nature thus accurate budgeting is desirable in achieving successful outcome (Larson & Gray, 2013:3)

Focusing on risk management, it is reported in Table 5.8 that there is a statistically significant difference in adequate risk management, χ^2**(5, 253) = 13.065, p = .023**. The post hoc result shows significant difference exist between the following:

i. Between respondents without construction education and those with high school construction education.
ii. Respondents with apprenticeship construction education and those with high school construction education.
iii. ECFs with short course construction education and those with high school construction education.
iv. Respondents with high school construction education and those with post graduate construction education.

This results shows that ECFs without construction education do not undertake risk management in their project activities since they do not consider it a core project

management skill. This assertion is consistent with literature, which shows many ECFs do not follow any project management techniques and tools when undertaking projects (Lazarus, 2008; CIDB, 2011a:7).

When it comes to the ability to meet customer expectation, there is a statistically significant difference with χ^2 **(5, 253) = 39.232, p < .001**.

The post hoc result indicates a significant difference exist between the following:

i. ECFs without education in construction from those with apprenticeship, short courses, high school and under graduate construction education.
ii. Respondents with apprenticeship construction education from those with high school and post graduate.
iii. Respondents with short courses construction education and high school construction education.
iv. Respondents with high school construction education and post graduate construction education.

This implies that when it comes to meeting customer expectation as project management core skills, only ECFs with some level of construction education consider it critical whilst ECFs without education ignore it. This could likely be the reason why many projects undertaken by ECFs do not meet customer requirements thus constant client dissatisfaction with emerging construction industry (Lazarus, 2008).

It is reported in the study that there is a statistically significant difference in team work among employees in achieving successful project outcome, χ^2**(5, 253) = 14.458, p = .013**.

The following are reported based on the post hoc result:

i. Significant difference exists between respondents without education in construction from those with high school and post graduate construction education.
ii. Respondents with apprenticeship construction education significantly differed from those with high school and post graduate construction education.
iii. ECFs with short courses construction education differed significantly from those with high school, under graduate and post graduate construction education.

This results show that ECFs without education in construction would likely not pay much attention to team work in project delivery. However, team work on projects is considered a core project management skill in delivering a successful project which individuals within project environment are encouraged to possess to enable successful project outcomes (Kloppenborg, 2012:5; Larson & Gray, 2014:17).

Furthermore, Table 5.8 shows that there is a statistically significant difference in adequate communication χ^2**(5, 253) = 48.662, p < .001**.

The following are reported based on the post hoc result:

i. Respondents without education in construction significantly differed from those with apprenticeship and high school construction education.
ii. ECFs surveyed with apprenticeship construction education differed significantly from those with short courses, high school and postgraduate construction education.
iii. Respondents with high school construction significantly differed from those with undergraduate and post graduate.

Adequate communication on project is considered a core project management skill in aiding successful project delivery (Kloppenborg, 2012:5; Larson & Gray, 2014:17). However, the suggestion from this result is that ECFs without construction education

do not consider adequate communication a core project management skill and thus are unlikely to use it during project activities, which will lead to communication problems during project execution.

In addition, it is observed from Table 5.8 that there is a statistically significant difference in appropriate project leadership χ^2**(5, 253) = 27.715, p < .001**.

The post hoc result reported the following.

i. Respondents without education in construction significantly differed from those with high school construction education.
ii. The surveyed ECFs with apprenticeship construction education differed significantly from those with high school and post graduate construction education.
iii. ECFs from the study with High school construction education significantly differed from those with under graduate and post graduate construction education.

Literature has shown that appropriate project leadership is a core project management skill that needs to be acquired by individuals in project environment in order to manage and lead projects successfully (Kloppenborg, 2012:5; Larson & Gray, 2014:17). However, the assumption from this result is that ECFs without construction education do not consider appropriate leadership as a core project management skill. The implication here is that it could lead to ECFs without construction education to ignore leadership on their project endeavour which could have detrimental effects in the long run on their project activities.

5.5.3 Business ownership type versus core project management skills awareness

Table 5.9 business ownership type versus core project management skills awareness

	Degrees of freedom	Chi-Square value	P-value
Accurate budgeting	3	29.866	1.473e-06
Correct scheduling of task	3	29.499	1.759e-06
Correct planning of project activities	3	33.217	2.899e-07
Clear detail of deliverables	3	39.857	1.142e-08
Adequate risk management	3	17.094	0.0006761
Meeting customer expectation	3	7.1806	0.06636
Teamwork	3	60.826	3.914e-13
Adequate communication	3	4.0617	0.2549
Successful execution of projects	3	25.314	1.328e-05
Appropriate project leadership	3	23.913	2.604e-05

From the results in the table 5.9 above, statistically significant differences exist in all the factors except meeting customer expectations and adequate communication in each of the core project management skills between the groups with business ownership types. Thus post hoc tests were conducted for factors with statistically significant differences ($p < .05$) to determine which of the groups differed from each other.

Accurate budgeting

Focusing on accurate budgeting, it is reported in Table 5.9 that there is statistically significant difference in accurate budgeting, $\chi^2(3, 253) = 29.866, p < .001$. The post hoc result indicates a significant difference between the respondents who are Sole

Proprietors from those with Partnership, Private Pty and Public Company type of business ownership.

Correct scheduling of task

The study has revealed that there is statistically significant difference in correct scheduling of task, χ^2**(3, 253) = 29.499, p < .001**. The post hoc result indicates a significant difference exist between the respondents who are Sole Proprietors and those with Partnership and Private Pty type of business ownership.

Correct planning of project activities

It is reported in Table 5.9 that there is statistically significant difference in correct planning of project activities, χ^2**(3, 253) = 33.217, p < .001**. The post hoc result indicates a significant difference existed between respondents who are Sole Proprietors and those with Partnership and Private Pty type of business ownership.

Clear details of deliverables

Concerning clear details of deliverables, χ^2**(3, 253) = 39.857, p < .001**. The post hoc result indicates a significant difference between the respondents who are Sole Proprietors from those with Partnership and Private Pty type of business ownership. There is also difference between respondents with Partnership from Private Pty and Public company type of business ownership. Respondents from Private Pty and those from the Public company type of business ownership also have differences.

Adequate risk management

In terms of adequate risk management, χ^2**(3, 253) = 17.094, p = .001**. The post hoc result indicates a significant difference between the respondents who are Sole Proprietors and those with Partnership and Private Pty type of business ownership. Also, there is a difference between respondents in Partnership and those from Private Pty type of business ownership.

Teamwork on project

When it comes to teamwork, χ^2**(3, 253) = 60.826, p < .001**. The post hoc result indicates a significant difference between the respondents who are Sole Proprietors and those with Partnership, Private Pty and Public company type of business ownership.

Successful execution of projects

On successful execution of projects, χ^2**(3, 253) = 25.314, p < .001**. The post hoc result indicates a significant difference between the respondents who are Sole Proprietors and those with Partnership and Private Pty type of business ownership.

Appropriate project leadership

As shown in Table 5.9, in terms of appropriate project leadership, χ^2**(3, 253) = 23.913, p < .001**. The post hoc result indicates a significant difference between the respondents who are Sole Proprietors from those with Partnership, Private Pty and Public company type of business ownership.

The discussions above based on Table 5.9 revealed that ECFs who run their business as Sole Proprietorship do not consider all the core project management skills tested as relevant in their project endeavours except for meeting customer expectation and adequate communication. The implication here is that these ECFs will probably ignore the other core project management skills which could lead to unsuccessful project outcomes. However, it is indicated that in a Sole Proprietorship business format, activities of the business are controlled by the owner/manager, therefore his/her decisions are what drive the business (Ehlers and Lazenby, 2010:324; Pearce and Robinson, 2013:321). Thus, ignoring the core project management skills could influence to everyone who works with the owner/manager to ignore them which in turn could lead to unsuccessful project outcomes by ECFs (Lazarus, 2008; CIDB, 2011a:7).

5.5.4. Sector vs. awareness of core project management Skills

Table 5.10 Sector vs. awareness of core project management skills

	Degrees of freedom	Chi-Square value	P-value
Accurate budgeting	3	26.428	7.76e-06
Correct scheduling of task	3	20.712	0.0001208
Correct planning of project activities	3	25.159	1.431e-05
Clear detail of deliverables	3	15.992	0.001138
Adequate risk management	3	11.67	0.008603
Meeting customer expectation	3	11.455	0.009505
teamwork	3	14.516	0.00228
Adequate communication	3	7.047	0.07041
Successful execution of projects	3	34.759	1.37e-07
Appropriate project leadership	3	10.404	0.01542

Table 5.10 depicts statistically significant differences exist in all the factors except adequate communication in each of the core project management skills between the groups with the sector they mainly undertake projects. Thus, in order to determine the differences between the factors that shows statistically significant differences ($p < .05$), post hoc tests were conducted.

Accurate budgeting

Focusing on accurate budgeting, it is reported in Table 5.10 that there is statistically significant difference in accurate budgeting, $\chi^2(3, 253) = 26.428, p < .001$. The post hoc result indicates a significant difference between the respondents who are in the construction industry versus those in mining, service industry and agro business.

Correct scheduling of task

The study revealed in Table 5.10 that there is statistically significant difference in terms of correct scheduling of task, χ^2**(3, 253) = 20.712, p < .001**. The post hoc result indicates a significant difference between the respondents who are in the construction industry versus those in mining and service. There is also a difference between respondents who work in service and work in agro business.

Correct planning of project activities

The study has revealed that there is statistically significant difference in terms of correct planning of project activities, χ^2**(3, 253) = 25.159, p < .001**. The post hoc result indicates a significant difference between the respondents who are in the construction industry versus those in mining and service. There was also a difference between respondents who work in service and work in agro business.

Clear detail of deliverables

Table 5.10 indicates statistically significant difference exist in case of clear detail of deliverables, χ^2**(3, 253) = 15.992, p = .001**. The post hoc result indicates a significant difference between the respondents who are in the construction versus service.

Adequate risk management

When it comes to adequate risk management, the study reported statistically significant difference exist, χ^2**(3, 253) = 11.67, p = .007**. The post hoc result indicates a significant difference between the respondents who are in the construction versus those in mining and service.

Meeting customer expectation

In terms of meeting customer expectation, Table 5.10 revealed statistically significant difference, χ^2**(3, 253) = 11.455, p =.010**. The post hoc result indicates a significant

difference between the respondents who are in the construction versus those in mining and agro business. There is also a difference between respondents who work in service and agro business.

Teamwork

The study has revealed that there is statistically significant difference (see Table 5.10) in terms of teamwork, χ^2**(3, 253) = 14.516, p = .002**. The post hoc result indicates a significant difference between the respondents who are in the construction versus those in service industry and agro business.

Successful execution of projects

It is reported in Table 5.10 that there is statistically significant difference in successful execution of projects, χ^2**(3, 253) = 34.759, p < .001**. The post hoc result indicates a significant difference between the respondents who are in the construction versus those in mining, service industry and agro business.

Appropriate project leadership

The study has reveal that there is statistically significant difference in terms of appropriate project leadership, χ^2**(3, 253) = 10.404, p = .010**. The post hoc result indicates a significant difference between the respondents who are in the construction versus those in mining and agro business.

Apart from only adequate communication that the various sectors in which ECFs undertake projects agree are critical to successful project delivery, ECFs who work in the construction sector surprisingly do not consider the rest of the core project management skills tested critical to successful project outcomes. This could be attributed to the fact that ECFs did not have sufficient project management education which could have exposed them to the importance of core project management skills in successful project execution. Further, this could be the reason activities of ECFs in

the construction industry are mostly considered risky, since they do not use the core project management skills in their project activities (Lazarus, 2008; CIDB, 2011a:7). Effective project management education could overcome this shortcoming among ECFs.

5.6 Summary

This chapter presented empirical findings of the study, which were fully discussed. In terms of the demographic data, it can be said that most of the ECFs owner/managers surveyed fall between the age bracket of 35 and 59 years (Figure 5.1). More men were involved in the construction industry in the survey compared with women (Figure 5.2). Most of the ECFs owners/managers have educational background ranging from high school to post graduate levels with only 7.4% who do not have any formal education. However, considering the highest level of education in project management, the findings show that although the majority of ECFs surveyed had high level of education, very few had some form of formal project management education (Figure 5.4). ECF ownership is mainly owner/managed, with majority of these owner/managers of black South African ethnic origin. Most of the ECFs also operate as sole proprietorships and employ generally less than 6 persons (Figure 5.9).

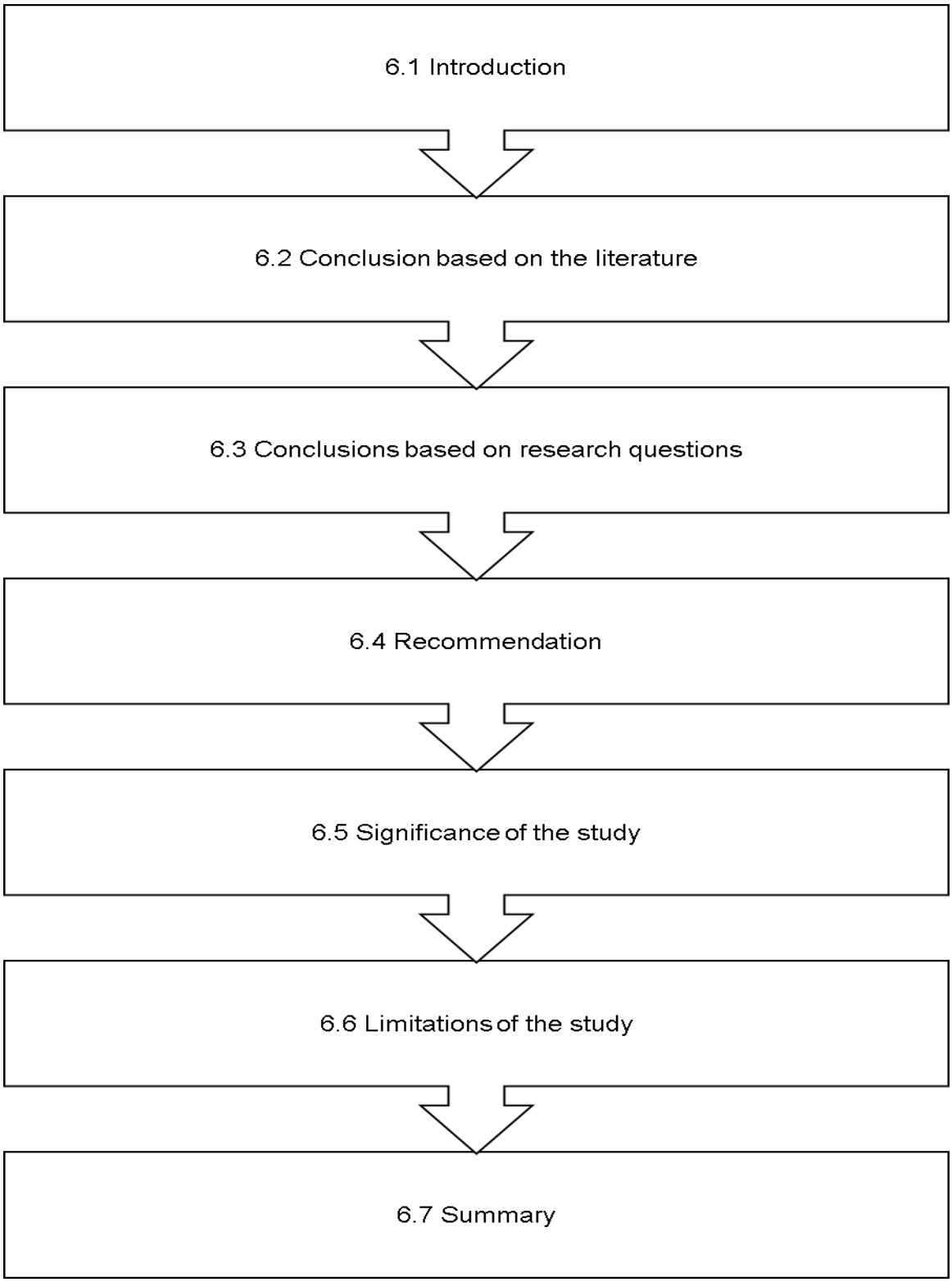
The study shows that a vast majority of the respondents consider project management a core skill with 99% indicating that project management core skills were required for delivering projects successfully (Table 5.1). In the terms of the project management skill level of ECFs surveyed, a substantial proportion (89.7 %) indicated that they were well acquainted with in the project management skills measured. The empirical findings reveal that the predominant organisational structure of the ECFs surveyed, could be considered to be a simple/entrepreneurial structure, since majority of the respondents were in favour of the indicators that lean towards the simple/entrepreneurial organisational structure (Table 5.3). The use of project management techniques and tools is also considered to be prevalent among the ECFs surveyed because the majority of them indicated that they use these techniques and tools in their project management endeavours. The organisational culture of the ECFs could also be considered to be favourable to adoption of project management

methodologies since majority of respondents agreed that their organisations possessed the cultural type conducive for change. It could also be inferred from the findings that majority of the ECFs favoured long-term implementation and commitment to the use of project management techniques and tools in their project endeavours.

The non-parametric statistical analysis conducted shows significant differences between awareness of core project management skills and project management educational level of the respondents. Significant differences were also found between awareness of core project management skills and construction educational level of ECFs surveyed. In addition, the non-parametric test shows significant differences between project management skills awareness level and business ownership types. Finally, significant differences were also shown in core project management skills awareness and the sector in which ECFs surveyed mainly undertook projects. Although ECFs mainly operate in the construction industry, the ECFs surveyed considered meeting customer satisfaction and adequate communication as the only core project management skills. The implication here is that most ECFs are likely not to use other core project management skills in their project activities which could lead to unsuccessful project outcomes. This should be worrying hence urgent intervention from the government is deemed highly necessary.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Chapter outline



6.1 INTRODUCTION

This chapter presents conclusions and recommendations relevant to the study. To recapitulate, the thesis statement of this study was to investigate formal project management adoption readiness of ECFs in MMM. The literature has shown that most of the ECFs do not currently use formal project management techniques and tools in the discharge of their project management endeavours. It is argued that the adoption and subsequent use of these project management techniques and tools would enable projects to be completed successfully (Meredith and Mantel, 2010:13; Maley, 2012:3; Kerzner, 2013:3). Therefore, for ECFs to successfully deliver projects thereby meeting their business objectives and also satisfying clients and other stakeholders, there is the need for them to adopt and use formal project management techniques and tools (Brown and Hyer, 2010:17; Maley, 2012:3). It was further argued that these techniques and tools can be acquired through appropriate change management processes in order to acquire the right mix of skills, whilst adopting the most appropriate organisational structure and culture in the process.

Against this background, the main objective of this study was to investigate formal project management adoption readiness of ECFs in the MMM. The specific research questions considered were:

1. To what extent do ECFs in MMM consider project management a core skill?
2. What is the level of ability of project management skills possessed by ECFs in MMM?
3. What is the main organisational structure of ECFs in MMM?
4. To what extent does the organisational culture of ECFs in MMM support project management processes?
5. To what extent do ECFS in MMM adhere to project management process (i.e. project initiation, planning, execution, controlling and closing projects)?
6. To what extent are owners/managers of ECFs in MMM committed to long-term implementation of project management process?

The introduction to the study was captured in Chapter 1. Items also included in this chapter included the problem statement, specific research questions, and the research objectives. This was followed by Chapter 2 and Chapter 3, which dealt with the literature review in regard to the study. Chapter 4 outlined and fully discussed the research methodology that was adopted in conducting the study. Chapter 5 presented and discussed the results of the empirical study. Conclusions and recommendations of the study were presented in the final chapter, Chapter 6.

6.2 CONCLUSIONS BASED ON THE LITERATURE

This study was empirical in nature; therefore, conclusions were based on empirical findings. However, extensive literature review conducted revealed that formal project management adoption and use play a vital role in successful delivery of projects (Brown & Hyer, 2010:17; Maley, 2012:3). The literature review indicated that several organisations, no matter their size, were moving towards the application of project management techniques and tools in order to achieve the desired project outcomes (Ratnasingam, 2007:91). Furthermore, the review of literature also highlighted how ECFs in South Africa did not make use of project management techniques and tools in their project activities, which has led to several reported undesirable repercussions for them, their clients and all other stakeholders of the projects they undertake (Lazarus, 2008; CIDB, 2011:7; Thwala & Mofokeng, 2012:147). Based on these findings, it was concluded that formal project management adoption and use by ECFs in MMM would go a long way to aid them in achieving their business and project objectives (Ladika, 2008:32; Meredith & Mantel, 2010:13).

6.3 CONCLUSIONS BASED ON RESEARCH QUESTIONS

In terms of the first research question: **To what extent do ECFs in MMM consider project management a core skill? T**he result in Table 5.1 showed that majority (99%) of the respondents considered project management a core skill in aiding them to delivery successful projects. Therefore, it is concluded that ECFs surveyed considered project management a core skill in their project endeavours.

On the second research question: **What is the level of project management ability and skills possessed by ECFs in MMM?** The results in Table 5.2 showed a high proportion (89.7%) of the ECFs surveyed had some level of ability in the project management skills they possessed. These skills included the ability to budget, schedule project activities, perform risk analysis, and identify project deliverables without difficulties. Thus, it was concluded that ECFs in the research area have the skills and ability to engage in project management. In other words, it was concluded that as far as project management skills and ability are concerned, the surveyed ECFs are ready to adopt project management.

With regards to the third research question: **What is the main organisational structure of ECFs in MMM?** The results in Table 5.3 illustrated that the dominant organisational structure of ECFs in the research area was simple or entrepreneurial organisational structure. This was because the responses based on the parameters measured had high proportion of the respondents indicating strongly agree/agree. Therefore, it was concluded that the ECFs surveyed manage their businesses using the simple/entrepreneurial organisational structure.

For the fourth research question: **To what extent do ECFs in MMM adhere to project management process (i.e. project initiation, planning, execution, controlling, and closing projects)?** The findings in Table 5.4 showed that vast majority (92%) of the ECFs surveyed use project management techniques and tools in their project endeavours. Thus, it was concluded that ECFs in the research area adhere to project management processes such as project initiation, planning, execution, controlling and closing in their project activities.

With regard to research question five: **To what extent does the organisational culture of ECFs in MMM support project management processes?** The results in Table 5.5 showed that a substantial proportion of the respondents (88%) showed strongly agree/agree to the elements of organisational culture that were considered to be key in supporting project management process in an organisation. Therefore, it was

concluded that the organisational culture of ECFs surveyed supported the project management processes.

Considering the last research question: **To what extent are owners/managers of ECFs in MMM committed to long term implementation of project management process?** Table 5.6, showed that, on average, a large proportion (89.6%) of the activities of owners/managers were directed towards events that could lead to improvement of their business operations. This included activities such as project management workshop attendance, participation in project management association, project management skill improvement and long term view of improvement of project delivery quality. Thus, it was concluded that owners/managers of ECFs in the research area were committed to long term implementation of project management processes.

6.4 RECOMMENDATIONS

In this section, recommendations for facilitating formal project management adoption readiness of ECFs in MMM are made. The study revealed a number of issues pertaining to project management and its use among ECFs, and how this affects their project delivery outcomes. Taking into consideration the fact that ECFs are a government agenda to empower individuals economically from the previously disadvantaged groups, there is the need for ECFs to achieve economic success in terms of the B-BEEE agenda which seeks to empower the previously disadvantaged groups through the emerging contractor programme. However, as indicated in Chapter 2 and Chapter 3, activities of ECFs are reported to be fraught with complaints from clients and other stakeholders. Furthermore, the application of project management techniques and tools has been reported to be helpful in achieving successful project outcomes. Therefore, since activities of ECFs are in the construction industry, which is project oriented, the following recommendations are made based on the research results and findings in Chapter 5 as well as the conclusion from the previous section.

6.4.1 Recommendation for practice and policy

Recommendations for practice and policy are considered in this section.

6.4.1.1 Project management education and training

As indicated in the findings, the majority of the respondents, though having higher level of education, do not have project management education or training of any sort. Therefore, introduction of project management education or training for ECFs would go a long way to enhance their project delivery outcomes. It is essential to note that applications of project management techniques and tools have been highlighted in literature to help in achieving successful project outcomes. Therefore, the introduction, adoption and use of these project management techniques/tools will facilitate effective project delivery by ECFs. However, it is important that ECFs are introduced to streamlined project management techniques and tools, which would not include the use of the more bureaucratic process that are used by larger organisations. This process could be achieved through cooperation between CIDB and project/construction oriented institutions of higher learning to design project management training programmes for ECFs. ECFs could then be trained on regular basis, so they could be introduced to new trends within the project management environment.

6.4.1.2 Construction education and training

The results in Chapter 5 show that the majority of ECFs surveyed had their construction education from short courses, which is commendable. However, there is a huge number of people who are involved in the ECFs programme without any construction education or training. It is therefore recommended that more short courses on construction education or training are organised on a regular basis for all new entrants into the ECFs, as well as existing owners/managers who currently do not possess any training in construction. This would unearth to the ECFs new technologies and trends in the construction industry. This exposure could assist them in improving their construction project delivery outcomes.

6.4.1.3 Business education and training

As shown in Figure 5.6, high proportion of the ECFs surveyed attained business education through short courses which is commendable. It is noted however that quite a large number of them do not have any business education. It is therefore recommended that CIDB and other authorities that are in charge of the ECFs programme regularly train new entrants as well as existing ECFs owners/managers in business education. This could help them in making the appropriate business decisions to help them grow and expand their businesses. The researcher believes that this will not be difficult to undertake since majority of the ECFs have higher educational backgrounds. Relevant authorities can collaborate with institutions of higher learning to design training programmes specifically for the ECF's needs. For instance, there could be an effective collaboration between CIDB and the Built Environment and Civil Engineering Departments of universities for the design of training materials for the empowerment of ECFs. This approach would without doubt improve the performance of ECFs should they successfully undertake such trainings premised on their readiness.

6.4.2 Recommendation for further research

Based on this study, the following recommendations for research are proposed.

1) It is recommended that a larger scale study comprising ECFs in all the provinces of South Africa be conducted in order to generate a holistic picture of the theme studied in this research, since the current study only focused on the Mangaung Metropolitan Municipality in the Free State.

2) The study results show a large proportion of ECFs surveyed indicated they are able to use the project management skills measured without much difficulty. Yet, the literature shows most projects undertaken by ECFs failed because of lack of project management skills. The researcher therefore recommends further studies to investigate if ECFs actually possess and apply these project management skills.

3) Thirdly, the study also recommends research into actual adoption of project management techniques and methodologies and performance of ECFs as this

study was limited to exploring the adoption readiness of these approaches by ECFs.

6.5 SIGNIFICANCE OF THE STUDY

The researcher identified three key contributions made by the study as follows:

1) Although there are studies on ECFs in general, none of these studies was on the formal project management adoption readiness of ECFs. Therefore, this study could be considered the first of its kind, and could help policy makers in decision-making processes on the ECF programme.
2) The researcher expects that this study will facilitate ECF's exposure to project management techniques and tools and their usefulness in their business activities.
3) It is also anticipated that this study will significantly contribute to the body of knowledge on the formal project management adoption readiness of ECFs in the research area as well as the broader South African environment.

6.6 LIMITATIONS OF THE STUDY

The following limitations are acknowledged for the study. These limitations could particularly affect the reliability and the generalizability of the results of the study, and should therefore be noted.

1) The generalizability of the findings of the study is limited due to the limited geographical scope surveyed.
2) Some research subjects although agreeing to take part in the research, did not return the responses.

6.7 SUMMARY

This chapter has drawn conclusions about the formal project management adoption readiness of ECFs in MMM based on literature review and empirical findings. Most findings suggest that even though majority of the ECFs surveyed have higher levels

of education, most of them do not have higher levels of qualification in project management. Implications of this conclusion for policy makers are that since majority of the ECFs surveyed do not have formal project management education, there is an urgent need for their training in the area of project management. This chapter further proposed various recommendations that could be factored into policy design and implementation. Areas for further research were also outlined. In addition, the significance of the study was also highlighted. Finally, limitations of the study were acknowledged.

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ANNEXURE A: QUESTIONNAIRE

Formal Project Management Adoption Readiness of Emerging Construction Firms questionnaire.

I am collecting data for Mr. J Akaba, a Masters student of Business Administration at Central University of Technology, Free State. He is being supervised in this project by Dr EK Agbobli. The study is titled “Formal Project Management adoption readiness of emerging construction firms in South Africa: A case study in the Mangaung Metropolis.

The aim of the research project is to acquire data about formal project management adoption readiness of emerging construction firms. The data will be useful for creating a better understanding of the readiness of emerging construction firms in adopting project management techniques and tools in the management of their project activities for successful project outcomes.

Responses to the questionnaire will be treated with the strictest confidence. The questionnaire will be filled anonymously and responses will not be attributed to a particular respondent and will be used for the purpose of this research only.

May you please use a few minutes of your time to answer the questions. The questionnaire should not take more than 30 minutes to complete.

The questionnaire consists of five (6) pages, that is, Sections A to G.

Thanking you in advance for your cooperation.

Section A: Demographic Data								
Please mark appropriate answer with X								
1	Please indicate your current age	1 (Under 18)	2 (18-34)	3 (35-45)	4 (46-59)	5 (60+)		
2	Please indicate your gender	1 Male			2 Female			
3	Please indicate your highest level of qualification	1 No formal Education	2 Primary	3 Middle School	4 High School	5 Under Graduate	6 Post Graduate	
4	Please indicate your highest level of education in project management	1 None	2 Apprenticeship	3 Short Courses	4 High School	5 Under Graduate	6 Post Graduate	
5	Please indicate your highest level of education in construction	1 None	2 Apprenticeship	3 Short Courses	4 High School	5 Under Graduate	6 Post Graduate	
6	Please indicate your highest level of business training	1 None	2 Apprenticeship	3 Short Courses	4 High School	5 Under Graduate	6 Post Graduate	
7	Please indicate your ethnic origin	1 Black South African	2 Other Black African	3 White South African	4 Other White	5 Other Foreigner		
8	Please indicate your role in the business	1 Owner		2 Manager		3 Owner/Manager		
9	Please indicate your business ownership type	1	2 Partnership		3 Private Pty		4 Public	

		Sole proprietorship				
10	Please indicate your CIDB contractor grade	1 (2 to 4)	2 (5 & 6)	3 (7 & 8)	4 (9)	
11	Please indicate the number of years you have been in business	1 (Below 5)	2 (5-10)	3 (11-15)	4 (16-20)	5 (Over 20)
12	Please indicate the number of person(s) employed by your business	1 (Under 6)	2 (6-20)	3 (21-50)	4 (51-70)	5 (71-100)	6 (101-200)
13	Please indicate the sector you mainly undertake projects	1 Construction	2 Mining	3 Service Industry	4 Agro Business	

Section B: Awareness of core Project Management skills						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
14	Accurate budgeting is key in achieving successful project outcomes	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
15	Correct Scheduling of task is key to achieving successful project execution	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
16	Correct planning of project activities is key to achieving successful project outcomes	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
17	A clear detail of all deliverables of the project is critical for successful project outcomes	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

18	Adequate risk management is precondition for successful project management	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
19	Ability to meet customer expectation is paramount to achieving successful project is outcomes	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
20	Teamwork among employees on the project is key to achieving successful project outcomes	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
21	Adequate communication among project team members is very important for achieving successful project objectives	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
22	Successful execution of projects largely depends on the allocation of the right people to various project activities	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
23	Appropriate project leadership is required for achieving successful project objectives	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Section C: Project Management Capability Of ECFs						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
24	I am able to budget for my project activities accurately without any difficulty	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
25	I am able to schedule my project activities accurately without any difficulty	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
26	I am able to perform risk analysis of my project activities without any difficulty	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

27	I am able to identify all the deliverables of the project before work is started on the project	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Section D: Main organisational structure of ECFs						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
28	All major business decisions are made by the owner/manager	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
29	Employee monitoring and control is done by the owner/manager	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
30	Day to day operations of the business is done by the owner/manager	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
31	Performance of activities/task in the business is grouped into functional areas	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Section E: Use of Project Management Techniques and Process						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
32	The business currently initiates projects before work is started on them	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
33	The business usually plans all project activities before project execution	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

34	The business controls all project activities during the project execution	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
35	The business puts in place corrective measures during project execution should anything go wrong.	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
36	The business formally closes project activities on completion before handover to project owners.	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Section F: Organisational Culture and project management processes						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
37	Employees identify with the business as a whole rather than their job or professional expertise	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
38	Employees are encouraged to be innovative	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
39	Employees are encouraged to be risk seeking	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
40	Employees are encouraged to air conflicts and criticisms openly	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
41	The business is quick to respond to changes in the external environment	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
42	Management take into account the effect of decisions on the employees	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

43	Employees of the organisation are not tightly controlled by management	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Section G: Extent of Mangaung ECFs' commitment to a long-term Project Management processes.						
Please mark the appropriate answer with X: The weight of your selected response is correspondent to the value attached to the response. That is (4) representing the highest weight and (1) the lowest weight						
44	The business continuously sends its members to attend workshops on project management practices	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
45	The business participates in Project Management Professional Associations' activities	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
46	The business is strongly committed to improving project management skills of its team members	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	
47	The business has a strong long term view of improving the quality of its project delivery process.	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	

Thank you for your time.