THE IMPACT OF SOCIAL NETWORKS ON INNOVATION, COMPETITIVENESS AND FIRM PERFORMANCE IN THE SOUTH AFRICAN CONTEXT: A CASE STUDY OF EMERGING CONSTRUCTION FIRMS IN THE FREE STATE

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DECLARATION

I, Mphulane Ramorena, student number[redacted], do hereby declare that this research report submitted to the Central University of Technology, Free State for the degree: Doctor of Business Administration is my own independent work and has not previously been submitted by me at another university/faculty. I further cede the copyright of the thesis in favour of the Central University of Technology, Free State.

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'YOUR WORD IS A LAMP FOR MY FEET, A LIGHT ON MY PATH' (Psalm 119:105)- *Yahweh*!

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"KHOTSO YA MODIMO E KE EBE LE LONA BANA BESO HO ISA BOFELONG"

ABSTRACT

Small businesses play a very important role in every economy hence their prosperity is a concern to all. In south Africa, recent researches have indicated low levels of performance and high attrition rate among small businesses. It is generally accepted that small business's survival is threatened by their larger business counterparts that are able to utilise their vast resources to their advantage. Fortunately, research evidence suggests that the ability of small businesses to compete with their bigger counterparts lies in their ability to engage in innovative activities. However, the sustainability of such innovative activities, depends on knowing which factors drive innovation the most in small businesses.

In the present study it is theorized that when emerging construction firms engage in social networks (internally and externally) and innovate, they will be more competitive and experience better firm performance. This problem is explicated in the conceptual framework from the perspective of social capital theories, especially social networks.

In general terms, this study contends that, small firms can rely on their social networks (both internal and external) to innovate in order to enhance their competitiveness and performance. Specifically, from social capital theory, it is argued that the resources embedded in social networks can be utilised by Emerging Construction Firms (ECFs) to be innovative and competitive for better firm performance.

A literature review preceded the empirical study to fully comprehend the theoretical and conceptual underpinnings of the interaction between social networks, innovation, competitiveness and firm performance. Thereafter, 16 hypotheses were formulated based on the conceptual framework. Data were then collected from 800 ECFs graded at category 1 to 7 by the Construction Industry Development Board (CIDB) in the Free State province of South Africa.

A key finding from mainstream literature is that due to resource limitations, smaller firms like ECFs will always find it difficult to compete with their big business counterparts on innovation and performance when they rely on money and tangible assets only. Literature also overwhelmingly indicates that innovation is enhanced by

collaborative ability. Further, the literature reviews also strongly indicated a positive relationship between innovation and firm performance.

The major empirical findings of this study are:

- Strong positive relationship exists between networking, innovation and ECFs' performance.
- Both product and process innovation positively impacted ECFs' performance.

Implications of these and other findings are presented and discussed in this research thesis alongside recommendations for research, policy and practice.

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CHAPTER 1: GENERAL ORIENTATION TO THE STUDY

"There are always two choices. Two paths to take. One is easy. And its only reward is that it's easy"

(Lavinsky, 2011)

1.1 INTRODUCTION

The success of small businesses has been an issue of academic debate for years. These businesses are believed to be key drivers of the economy and job creation. South Africa's unemployment rate is believed to be around 25% and one of the main goals that the South African government has set itself is to cut unemployment rate to 6% by 2030 (The Presidency, 2012). Whilst the definition of small business itself has also received much contestation, small businesses have continued to be the engine of the South African economy (Abor & Quartey, 2010; Apulu, 2012; Agbobli, 2013). Scholars (Van Aaardt, Van Aaardt, Bezuidenhout & Mumba, 2008; Radnic, Ivanis & Milojica, 2010) argue that the value of small businesses is often attributed to their direct contribution to job creation, innovation and wealth creation. Small businesses are unable to compete against their larger counterparts due to lack of financial resources and technical ability. The only better resource at their disposal, it seems, is their ability to collaborate with others and learn from one another. The central thesis of the current study is therefore to investigate the impact of social networks on innovation, competitiveness and firm performance on small businesses.

This chapter provides a general overview of the study, including the problem and its setting, the theoretical and conceptual framework of the study, the research objectives, an outline of the research methodology employed in the study, ethical issues related to the study, the delimitation of the current study and limitations of the study and finally the organisation of the study.

1.2 PROBLEM BACKGROUND

Various authors have indicated that the construction industry is an important player in the economy of South Africa (Engineering News, 1999:1; Ncwadi & Dangalzana, 2005:1; Gyekye, Oseifuah & Vukor-Quarshie, 2012:919; Moses, Sithole, Blankley, Labadarios, Makelane, & Nkobole, 2012:20). Small businesses and by extension, emerging construction firms, have proved to be pivotal to the economy and are considered to be significant contributors to gross domestic product. The White Paper on 'Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry' (DPW, 1999), for example, highlighted that the construction industry provides the infrastructure which is fundamental to the development of South Africa.

To this end a number of specialized regulatory and financial development institutions have been established to support small businesses. The Black Business Supplier Development Programme (BBSDP) which is a cost sharing grant mechanism offered to small black-owned businesses to assist them in improving competitiveness and business sustainability is one such example. Another similar example is an Incubation Support Programme (ISP) which aims to develop successful enterprises with the potential to revitalize rundown communities and to strengthen local economies.

The influx of small businesses, however, in the mainstream economy has intensified competition in the marketplace, especially between existing large and budding small businesses (Gunday, Ulusoy, Kilic & Alpkan, 2011:668). It is therefore this "budding" amongst small businesses that suggests that those firms that do not collaborate with others will find it hard to compete in the market. Apart from collaborations, firms need to embrace innovation as an integral part of their strategy and survival under such a competitive business environment (O'Regan, Ghobadian & Sims, 2006:252). In order to perform well economically, it is apparent that emerging construction firms (ECFs) need to innovate. Scarborough (2011:12) defined innovation as the ability to apply creative solutions to problems and productive opportunities to enhance or enrich people's lives.

To this end much scholarly literature stresses the significant relationship between innovation and firm performance (Mohnen & Therrien, 2003; Ncwadi & Dangalazana, 2005; Mansury & Love, 2008). For Moses et al. (2012:1), innovation boosts economic performance. In fact, innovation is seen as the critical factor "for fuelling long-term sustainable economic growth and, concomitantly, employment creation and poverty alleviation in all economies both developed and developing (Gyekye et al., 2012:915). It is therefore not surprising that one of the most striking additions to theoretical and academic debates over the past few decades has been the concept of innovation. Whilst there is empirical evidence of the link between innovation, competitiveness, business performance and survival, more importantly in turbulent business environments (Nieman & Niewenhuizen, 2009:60) the issue of what drives innovation in small businesses, especially in developing and emerging economies, has received little attention. It is therefore fair to say that although the role of small businesses in any economy is appreciated, the performances of such small businesses remain a significant concern, especially in light of the failure of many such businesses.

1.3 PROBLEM STATEMENT

It can be inferred from the discussion in 1.2 above that the presence of large and financially stable businesses is a threat for the continuing survival of small businesses. The ability of small businesses to compete with their bigger counterparts lies in their ability to engage in innovative activities. The sustainability of such innovative activities, however, depends on knowing which factors drive innovation the most in ECFs.

In the present study it is theorized that when emerging construction firms engage in social networks (internally and externally) and innovate, they will be more competitive and experience a better firm performance than their rivals. This problem is explicated in a conceptual framework depicted in Figure 1.1 below but is analysed in Chapter 2 of the current study from the perspective of social capital theories, especially social networks.

1.4 CONCEPTUAL FRAMEWORK

This study is framed in terms of the following key concepts: Emerging construction firms; social networking (internal and external); innovation; competitiveness and firm performance. Figure 1.1 shows the respective interconnections between these variables.

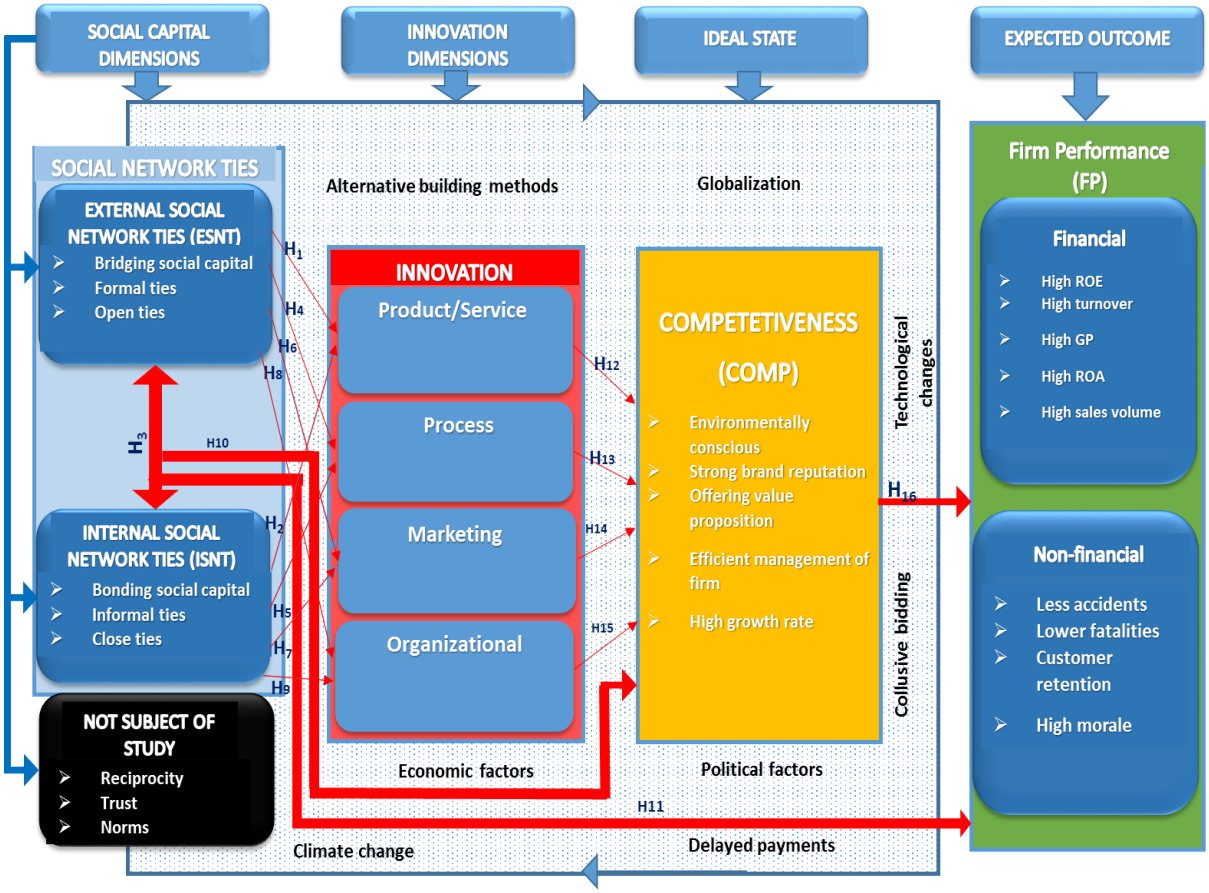


Figure 1-1: Social capital pathways to enhance performance of ECFs

According to Figure 1.1 above, ECFs are stratified based on the nature of their social networks. The theoretical framework that guides the study (social capital theory) and associated pathways and mechanism strongly emphasizes the importance of social networks on firm performance. In this study, it is theorized that social networks are the vital antecedent to innovation and the consequence of innovation is firm performance, with competitiveness as a moderating variable. That is, "social networks" play a central role in the innovation, competitiveness and, ultimately, performance of ECFs.

Through an intensive empirical study undertaken (also discussed in details in Chapter 6 of the current study) the relationships between key variables presented in Figure 1.1 above clearly indicate the central role played by social networks (internal/external) on innovation, competitiveness and firm performance.

1.5. RESEARCH OBJECTIVES AND HYPOTHESES

1.5.1 PRIMARY OBJECTIVE

Using emerging construction firms (ECFs) in the Free State Province of South Africa as a case study, the purpose of the study was to determine whether or not there is a significant positive relationship between emerging construction firms' extent of social capital formation (internal and external), degree of innovation, competitiveness and firm performance.

1.5.2 SECONDARY OBJECTIVES

The specific objectives of the study were:

(1) To propose an implementation framework promoting innovation through social networks among ECFs.

(2) To use data collected from ECFs to validate the conceptual framework by testing each of the sixteen (16) hypotheses arising from the conceptual framework.

(3) To provide recommendations and guidelines for policy that practitioners (government and/or private) can adopt that can enhance the performance of ECFs.

1.5.3 HYPOTHESES

In order to achieve the study's objectives various hypotheses (with H_o signifying the null hypothesis and H_a signifying the alternative hypothesis) were grouped according

to six themes. Since the hypotheses are arranged thematically, they do not follow the normal numerical order (1, 2, 3, etc.) and are presented as follows:

THEME 1- SOCIAL NETWORKING AND INNOVATION - [(i) Product/Service (ii) Process (iii) Marketing (iv) Organisational]

H_{o1}: *External social networking is not positively related to product/service innovation.*

H_{a1}: *External social networking is positively related to product/service innovation.*

H_{o2}: *There is no positive relationship between internal social networking and product/service innovation.*

H_{a2}: *There is a positive relationship between internal social networking and product/service innovation.*

H_{o4}: *There is no positive relationship between external social networking and process innovation.*

H_{a4}: *There is a positive relationship between external social networking and process innovation.*

H_{o5}: *There is no positive relationship between internal social networking and process innovation.*

H_{a5}: *There is a positive relationship between internal social networking and process innovation.*

H_{o6}: *There is no positive relationship between external social networking and marketing innovation.*

H_{a6}: *There is a positive relationship between external social networking and marketing innovation.*

H_{o7}: *There is no positive relationship between internal social networking and marketing innovation.*

H_{a7}: *There is a positive relationship between internal social networking and marketing innovation.*

H_{o8}: *There is no relationship between external social networking and organisational innovation.*

H_{a8}: *There is a relationship between external social networking and organisational innovation.*

H_{o9}: *There is no positive relationship between internal social networking and organisational innovation.*

H_{a9}: *There is a positive relationship between internal social networking and organisational innovation.*

THEME 2- SOCIAL NETWORKING AND COMPETITIVENESS

H_{o10}: *There is no positive relationship between social networking and competitiveness.*

H_{a10}: *There is a positive relationship between social networking and competitiveness.*

THEME 3- SOCIAL NETWORKING AND FIRM PERFORMANCE

H_{o11}: *Social networking does not positively influence firm performance.*

H_{a11}: *Social networking positively influences firm performance.*

THEME 4- EXTERNAL AND INTERNAL SOCIAL NETWORKING

H_{o3}: *There is no positive relationship between internal and external social networking.*

H_{a3}: *There is a positive relationship between internal and external social networking.*

THEME 5- INNOVATION [(i) Product/Service (ii) Process (iii) Marketing (iv) Organisational] AND COMPETITIVENESS

H_{o12}: *There is no positive relationship between product/service innovation and competitiveness.*

H_{a12}: *There is a positive relationship between product/service innovation and competeveness.*

H_{o13}: *Process innovation does not positively influence competitiveness.*

H_{a13}: *Process innovation positively influences competitiveness.*

H_{o14}: Marketing innovation does not positively influence competitiveness.

H_{a14}: Marketing innovation positively influences competitiveness.

H_{o15}: Organisational innovation does not positively influence competitiveness.

H_{a15}: Organisational innovation positively influences competitiveness.

THEME 6- COMPETITIVENESS AND FIRM FINANCIAL PERFORMANCE

H_{o16}: Competitiveness does not have a positive influence on firm financial performance.

H_{a16}: Competitiveness has a positive influence on firm financial performance.

1.6 RESEARCH METHODOLOGY EMPLOYED

This section provides only a general outline of the research methodology employed since a more detailed account is provided in Chapter 5. This was a cross-sectional study designed to collect quantitative data at a specific point in time, employing largely statistical (quantitative) techniques in the analysis of the data collected. The study is both descriptive and exploratory in nature.

1.6.1 RESEARCH APPROACH

In research as well, as Lavinsky (2011) indicates in the opening remarks, there are two paths for the researcher to follow: positivism and/or an interpretivism route. The current research was conducted from a positivist perspective. Issues about what should be considered acceptable knowledge in a discipline are characterized as epistemology (Blumberg, Cooper & Schindler, 2008:20; Bryman & Bell, 2011:15). While positivism advocates for the adoption of the natural sciences methodology with empiricism as its underlying principle (Bryman & Bell, 2007:15), interpretivism or constructivism, as an antithetical position to positivism, is said to facilitate deeper understanding of social phenomena from the viewpoint of the actors (Blumberg et al., 2008:23; Bryman & Bell, 2011:410; Zikmund, Babin, Carr & Griffin, 2013:134) and involves smaller sample sizes, enabling faster data collection and analysis (Cooper & Schindler, 2011:163). This study was, therefor, both descriptive and inferential in

nature. Descriptive and inferential studies typically adopt quantitative (survey) methods rooted in the positivist epistemology.

1.6.2 GEOGRAPHICAL SCOPE, POPULATION AND SAMPLING

The study was conducted in the Free State province of South Africa. The study adopted a simple random sampling technique. The size of a sample in probability sampling is a function of the variation in the population parameters (measurable characteristic) being investigated and the desired level of precision (Cooper & Schindler, 2011:374). A sample size of 800 active emerging construction firms was generated from the 6267 active firms in grades 1 to 7 of the various classes on the Construction Industry Development Board's (CIDB) database.

1.6.3 DATA COLLECTION AND ANALYSIS

Six trained research assistants were used to collect data through structured Likert-scale questionnaires. The collected data was then subjected to an analysis process using the IBM Statistical Package for Social Sciences (Version 23). Data analysis is a process of breaking down the collected data such that one is able to answer research questions adequately. Data analysis is a process that leads to the production of statistics that can be descriptive and/or inferential in nature (Arko-Achemfuor, 2013:141). In this study, both descriptive and inferential statistics were produced. Descriptive statistics enable one to describe (and compare) variables numerically (Saunders, Lewis & Thornhill, 2007:434) and how certain measured characteristics appear to be "on the average", as well as the variability among different pieces of data (Leedy & Ormrod, 2005:30).

1.7 ETHICAL ISSUES

There is a growing attention and focus on ethical considerations in research (Hair, Wolfinbarger, Ortinau & Bush, 2008:13; Cooper & Schindler, 2011:32). Ethics have become a key component in research for at least two broad reasons. First, for research outputs to be reliable, the research process should adhere to certain moral standards. Second, ethical behaviour has become a central issue for researchers in recent times

because it reflects normative or standardized behaviour that guides moral choices about the behaviour of researchers toward their research elements (respondents or objects) (Cooper & Schindler, 2011:32). In this respect, the current research was guided by the highest possible ethical standards. Data generated from the survey was treated with utmost confidentiality.

In the data collection process, the researcher and the research assistants avoided intrusion into the privacy of the respondents. The respondents were treated with dignity and respect, which largely won their confidence and trust. The respondents were persuaded to voluntarily participate in the survey. The rationale for the study was clearly communicated to the respondents in the hope of soliciting honest opinions and authentic information during the study as well as soliciting informed consent from participants. The research was driven by competence and the avoidance of biased and false reporting with the ultimate objective of reporting quality and reliable findings.

But ethics in research goes beyond the researcher and the participants. Sponsors should not be denied the right to quality research output and sponsors' right to non-disclosure (right to confidentiality - not to reveal themselves), among others, needs to be observed (Cooper & Schindler, 2011:40). In accordance with this perspective, the execution of the research was done at the highest standard possible to achieve quality and unbiased outcomes while respecting sponsors' right to the outcome of the research project.

1.8 DELIMITATION OF THE STUDY

The purpose of demarcating a study is to make it more focused and manageable from a research point of view. This study was delimited to contractors registered with the CIDB in grades 1 to 7 and focused on social capital and its impact on innovation, competitiveness and firm performance. The study was further delimited to only one dimension of social capital, social networks, while other dimensions such as trust, norms, associational activities, etc. were ignored. However, the omission of similar research sites does not mean that they are not important and researchable. Rather, it means that the volume and extent of the study would be difficult to manage in a single study.

1.9 LIMITATIONS OF THE STUDY

Like all studies, the current study is not devoid of limitations. Three main limitations for this study deserve mention. First, issues such as firm performance would have needed a longitudinal study to be more insightful. That is, the performance of ECFs, should have been observed over a longer period for returns on investments to be more stable. However, despite this limitation, the data produced within the short period of the study is considered enough to gauge long term performance.

Second, the limited geographical scope (Free State province) of the study obviously limits the generalizability of the findings since South Africa is a vast land with nine provinces. However, the choice of the Free State province (see *Figure 1.2* below) is appropriate given a population of 2.74 million people and a high unemployment rate of 33.9% reported in the first quarter of 2016 (Statistics South Africa, 2016). The information from this study becomes very useful in ensuring that SMMEs become more innovative, prosper and create jobs. Besides, conditions affecting emerging construction firms (ECFs) in the Free State are not expected to be that dissimilar from other ECFs' conditions in other provinces. This makes it possible to extrapolate findings from the current study to other provinces, without compromising the validity of the findings to any significant degree. The limited geographical coverage was also influenced by financial, time and resource constraints.

Also, the use of only the quantitative approach prevented the researcher from probing deeper into some of the motives ECFs engage in social networks and how innovation may improve, not only ECFs' performance, but also improve their working conditions. These limitations were unavoidable because of the practical limitations that studies for degree purposes impose. In the end, all these shortcomings cannot detract from the fact that this study has in its own right enlightened and enriched our understanding of entrepreneurship and how social networks can enhance innovation, competitiveness and improve firm performance.

Figure 1-2:Map of the Free State Province of South Africa

Source: Statistics South Africa (2013)

1.10 ORGANISATION OF THE STUDY

This study is structured into seven chapters as follows. **Chapter 1** (current chapter) presents the general overview and background to the study. It includes the problem statement, research questions, objectives, methodology employed, ethical considerations, delimitations of the study and concludes with an analysis of the limitations of the current study. **Chapter 2** introduces social capital theory, a theory underpinning the current study, and introduces the study's proposed social capital framework. **Chapter 3** deals with entrepreneurship and small business. **Chapter 4** reviewed the literature on innovation, competitiveness and firm performance. **Chapter 5** presents the methodology applied in the study. **Chapter 6** is dedicated to the presentation, analysis and interpretation of the results. Last, **Chapter 7** articulates the conclusions and recommendations for practice, policy and directions for future research.

1.11 CONCLUSION

This introductory chapter has explored and explicitly highlighted the research problem investigated. Small businesses despite their lack of resources are considered to be the engine and drivers of any economy and as such their ability to collaborate, be innovative and competitive and perform economically better is important. The study, framed on social capital theory, argues that the social networking capability of ECFs, innovation, competitiveness and firm performance are positively related. These constructs form the basis of the literature review in subsequent chapters.

CHAPTER 2: SOCIAL NETWORKS

"Social capital, within the firm and across the firm's border to other firms, seems to be a prerequisite for organisational learning, adaptability and agility"

(Krebs, 2008:39)

2.1 INTRODUCTION

The previous chapter stated that social capital theory underlines the current study and offered a conceptual framework depicting the probable relationship between social networks, innovation, competitiveness and firm performance. This chapter unravels the first component or key variable of the current study which is social networks.

While electronic social networking is a relatively recent development, businesses, especially established ones, are already examining ways through which such platforms can utilize social networks to spread information, better serve their customers, and grow profits (Zikmund, Babin, Carr & Griffin, 2013:40). Social capital, which is a value derived from social networks (Zikmund et al., 2013:40), can be loosely defined as the resources embedded in the social networks that an individual has which can be accessed whenever needed. These resources, and by extension their value, are only available based on the nature of the social relations that exist among participant individuals. Social capital has been widely debated in the literature for several decades (Hanifan,1916:131; Homans, 1961:25; Jacobs, 1961:31; Granovetter, 1973:1361; Loury, 1977:155; Coleman, 1988:98; Fukuyama, 1995:17; Putnam, 2000:171; Wu, 2008:123). In spite of the increased interest in this term, its precise definition and measurement are still widely contested (Fukuyama, 1995; Putnam, 2000; Wu, 2008, Byeong, 2015). In fact, various scholars have defined social capital based on the discipline and area of function intended.

Despite the perceived importance of social capital in the economic and business literature, little research has focused on social networks within the ECFs in emerging

economies. This research gap, the study argues, is attributed, partly, to the fact that the construction industry delivers its products to its client base by way of a stream of generally single and unique projects. Contractor movement around geographically dispersed areas makes it almost impossible for scholars to spend time analysing important trends affecting this industry. This paucity of research is disturbing, particularly in light of the high failure rate among small businesses, and by extension ECFs, in South Africa (Thwala & Mofokeng, 2012:19).

This chapter is organized as follows: First, the concept of social capital is introduced with a brief discussion on theories of social capital, followed by an exposition of the dimensions of social capital (with special emphasis on social networks a key component of this study) and the social capital framework. Thereafter, measurements of social networks, its practical application and its benefits are examined to offer a better understanding of what ECFs can gain from this form of capital.

2.2 CONCEPTUALISING SOCIAL CAPITAL

Since there is no universally accepted definition of “social capital”, an essential point of departure is to conceive it as social networks and social capabilities that influence the performance of regions and nations (a macro perspective) or individual networks and social relationships (a micro perspective) available to firms and/or organisations to maximize value (Rooks, Szirmai & Sserwanga, 2009; Byeong, 2015). Both perspectives project social capital not as the property of any individual or entity, but as embodied in the social relations of the actors.

Social capital theories include, amongst others, social exchange theory, the transaction cost theory and social network theory (Premaratne, 2002; Blau, 2009). Social exchange directs attention to emergent properties in interpersonal and social interaction and suggest that a person for whom another has done a service is expected to express his gratitude and return a service when the occasion arises (Blau, 2009:4). Premaratne (2002:86) argues that one of the most widely used theoretical approaches to study enterprise social capital is the transaction cost theory. When two or more

independent entities exchange a good or service between each other a transaction takes place. Costs generally associated with such a transaction are referred to as transaction costs. ECFs, by virtue of their business, are constantly engaged in transactions with one another. The determinants of transaction costs are frequency, specificity, uncertainty, limited rationality, and opportunistic behaviour and involve the transfer of goods and services from one unit to another (Williamson,1981; Fatoki, 2011). Transaction costs could prove to be detrimental for ECFs if not managed properly and as such, opportunistic behaviours may not be realized. Accordingly, ECFs, in particular, have to cooperate with other organisations to minimize such transaction costs.

Social network theory views social relationships as consisting of nodes and ties (Premaratne, 2002; Jaarfar, Abdul-Aziz & Sahari, 2009). Nodes are the individual actors within the networks with ties explaining the nature of the relationship (how strong or weak) between the actual actors. Scholars (Premaratne, 2002; Jaarfar et al., 2009; Byeong, 2015) observe that social relationships are crucially important to the entrepreneurial process because the information needed to start and grow a business is basically passed to the entrepreneur through the existing social networks of friends. ECFs must build reputation-enhancing relationships with outside resource providers who are willing to share valuable information, new methods of construction, new survey equipment and funding models.

Authors (Uzzi,1999; Standing, Stockdale & Love, 2007; Byeong, 2015) demonstrate that the closeness of relationships ranges from arm's length to embedded. Arm's length ties, as opposed to embedded ties or relationships that create long-term social contacts, are characterized by lean and infrequent, formal and impersonal, transactions and function without prolonged personal or social contact between actors (Standing et al., 2007:92). For ECFs, to survive in their turbulent environments adoption of embedded ties is considered to be the only means of outperforming their established counterparts. Social network theory is adopted in the current study to indicate how innovating ECFs, relying on social networks, can be competitive and enjoy a better firm performance. The central theme in any discussion of social

networks tends to be social ties, shared norms and sanctions (Guillén, Coromina & Saris, 2011:332) and these are discussed in the next section.

2.2.1 SOCIAL TIES

According to the social-capital theory, strong ties provide ecological reasons for network members to lend resources to others, not necessarily for direct gain from the borrower but for reputation and other benefits that one can derive from the entire network (Lin, 2001:18; Burt, 2007:35). A focus on social ties presupposes that networks of relationships could constitute a valuable resource for the conduct of business among ECFs. It is therefore critical to conceive social capital as a resource to be explored and a capacity to be optimally harnessed.

As a result, network members who are connected to the focal actor through a strong tie will be more motivated to cooperate with the actor than those connected via a weak tie. For ECFs, as Lin (2001:22) and Burt (2007:37) confirm, having diverse embedded resources in a network is considered to increase social capital and improve the chance of finding the right resources needed to achieve one's goals. This concept is discussed in more detail under Section 2.3 (social networks) of this study.

2.2.2 SHARED NORMS

Authors (Coleman, 1990; Williams, 2006; Byeong, 2015) suggest that the closure of social networks and cohesive ties have positive effects on promoting a normative milieu that facilitates trust, cooperation and interaction between actors. Norms and their accompanying potential rewards (for compliance) or punishments (for non-compliance) have no legal or other formal basis and are not necessarily the sole determinants of decisions by rational actors, rather, they "affect the costs and benefits which individuals take into account when exercising choice" (Coleman, 1990; Burt, 2007). In an organisational context, therefore, shared norms are configured in normal business practices. ECFs belonging to a particular network or association will always

want to ensure a fair and honest bidding process, though such practice may not be legally binding, so that their practices are not detrimental to other network/association members.

One of the basic tenets of social exchange theory is that relationships evolve over time into trusting, loyal, and mutual commitments. For this to occur, parties must abide by certain “rules” of exchange, which form a “normative definition of the situation that forms among or is adopted by the participants in an exchange relation” (Cropanzano & Mitchell, 2005; Burt, 2007). In the context of ECFs, they normally prefer working with entities/communities they trust, as dishonest relationships threaten their continued survival and performance.

2.2.3 SANCTIONS

The trust that members of the network places in each other is a key ‘oil’ that keeps the network machine going. This type of trust captures its deterrent aspect (Dakhli & de Clercq, 2004; Byeong, 2015). Deterrence-based trust relates to the belief that efficient sanction mechanisms make the breach of contracts amongst actors costly, which therefore makes it possible for actors to cooperate and expect reciprocation (Rousseau, Sitkin, Burt & Camerer, 1998; Dakhli & de Clercq, 2004; Guillén, Coromina & Saris, 2011). ECFs in a network are expected to be loyal and treat each other with respect, knowing very well that transgressions shall be punished severely.

The next subsections delineate key constructs or dimensions of social capital theory associated with social networks that are used as an analytical framework. These concepts were selected and adopted because they constitute the foundations for social networking. It is also important to understand these core constructs when we explore the roles of social capital in the quest of firms wanting to be innovative and hence becoming competitively better than their rivals. However, the study’s construct of interest is networks; hence, there is a brief discussion about other dimensions of social capital.

2.3 CORE CONSTRUCTS OF SOCIAL CAPITAL

Scholars concerned with ways to measure social capital have proposed different dimensions of it. Although each study adopted different components to explain social capital, there have been some key components that are most frequently mentioned: (a) social networks; (b) trust; and (c) norms (Jones, 2005:308; Kaasa, 2009:219; Nordin & Westlund, 2009:270). There have been various classifications offered by scholars over the decades, and in this study we shall only examine such classifications from the work of notable scholars such as Robert Putnam, Pierrie Bourdieu and James Coleman. The classification by Nahapiet and Ghoshal (1998), whose model is later referred to, is also outlined in this study.

2.3.1 PUTNAM'S CLASSIFICATION

The classification of social capital was initially proposed by Putnam (1995:12), who believed that networks, norms and trust facilitate coordination and cooperation among actors for mutual benefits. In Putnam's formulation, social capital is elevated from a feature of individuals and small groups in local communities to a feature of large population aggregates. Since social capital becomes a collective trait functioning at the aggregate level, it can become a *diagnostic tool* for societal, political and economic health (Fukuyama, 2001; Newton, 2006). In the context of ECFs, this view by Putnam should enable researchers to understand why there are dysfunctional elements among ECFs and consequently why some collectives among organized ECFs are economically better than individual firms.

Putnam is mainly critiqued for his treatment of trust as an aggregate indicator of social capital and for the ways this is linked to associational participation, economic growth and democratic ethos at regional or national levels. Aggregating trust at the regional or national level, however, eclipses information about all the vital variability of trust at the individual level. Further, if context makes all the difference, social capital cannot be assumed to be a standard quality inherent in every individual or in the relationships among individuals (Smith & Kulynych, 2002:151; Newton, 2006:855). Putnam's view suggests that if there is regional trust among communities and such trust shall also

prevail among ECFs in that region. This cannot always be true because ECFs are affected and exposed to various conditions in their regions and this can have an effect on their levels of trust. For example, there is no grading system in Lesotho and Botswana, regional countries of South Africa (SA), yet ECFs in SA are graded.

2.3.2 BOURDIEU'S CLASSIFICATION

Offering a classification from an aggregated view of social capital, Bourdieu (1986:243) explains social capital as the aggregate of the actual or potential resources linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition. Social capital for Bourdieu is related to the size of network and the volume of past accumulated social capital commanded by the agent, with profit (which can be reducible to economic profit) being the main reason that actors engage in and maintain links in a network (Bourdieu, 1986; Byeong, 2015).

This perspective clearly suggests that ECFs will engage in associational activities that have a profit motive in them, further augmenting the view of social exchange theory, which posits that actors will only engage in exchanges that are beneficial. According to Bourdieu, all forms of capital, by being organically related to positions in social space, act in two ways simultaneously: they reproduce all forms of capital and they use these resources to embed the actor's position further. So positions of actors are both the cause and the effect of all forms of past accumulations of capital, particularly social capital. Social capital can be seen as a 'credential' that perpetuates social inequality by providing differential entitlements to credit (Bourdieu, 1986:248; Newton, 2006: 856).

Bourdieu's theory has been criticized as reductionist for privileging economic capital as the ultimate source and eventual exchange form of all other capitals. According to Bourdieu the "*Ubuntu* spirit" that always characterizes the way ECFs, especially African businesses, operates in reaching out to others and learning from others is

substituted by an economic capital and driven by the economic motive. Bourdieu is also faulted for attributing actors as interest-bounded and utility-oriented in all human actions (Goldthorpe, 1996; Swartz, 1997; Guillén, Coromina & Saris, 2011). ECFs, in Bourdieu's view, are seen as purely driven by interest and engaging in networks for the purpose of utilizing network members for their own selfish interests.

2.3.3 COLEMAN'S CLASSIFICATION

With significant similarity to Putnam's classification, Coleman (1988:93) also divided social capital into three elements: a) obligations and expectations, b) social norms and c) information channels whose roles are considerably overlapped by social networks. Although the dimension of social capital has not been standardized yet, these three dimensions have been regarded in prior research by many scholars as the core components of social capital (Fukuyama, 1995:38; Jones, 2005:325; Weber & Weber, 2007:19). Coleman's (1988) definition of social capital comes close to Bourdieu's (1986) definition but from a completely different point of departure.

For Coleman (1988:98), social capital "consists of some aspect of social structure and facilitates certain actions of actors- whether persons or corporate actors- within the structure." Coleman adopts a middle line between two theoretical traditions. The first is a functionalist view of social action, which is conditioned by social structure. The second is rational theory, which suggests that actors' goals are determined by utility - maximizing pursuit of his/her self-interest (Coleman, 1988:95). The second view in the context of ECFs is also still in line with the social exchange theory view, which further justifies that ECFs will only engage in social networks that are beneficial.

Coleman's insistence on closure as a precondition of the functionality of social capital-based networks is a major criticism for his classification. Based on Granovetter's (1973:1361) notion of 'weak ties' and Burt's (1992:51) 'structural holes' concepts, discussed later in this Chapter, Lin (1999:34) and Adler and Kwon (2002:29) dismissed closure as a precondition for social capital. Lin (1999:37) argued that closure is

required only in goal-specific pursuits of actors. When ECFs, for example, are searching for and maintaining resources, closure is needed. However, when ECFs are searching for and obtaining resources, they require bridges with other network members and so closure is neither needed nor desired.

2.3.4 NAHAPIET AND GHOSHAL'S CLASSIFICATION

Nahapiet and Ghoshal's (1998) social capital framework, examined later in this study, also specified social capital as having three aspects: a) a structural dimension, which refers to configuration and patterns of connection between actors, including network ties or network configuration; b) a cognitive dimension that contains shared codes, languages, visions and narratives; and c) a relational dimension that includes trust, norms, obligations and identification, which bond and control people in networks. The three dimensions of social capital, 'trust' (toward networked people), 'norms' (as the relational dimension of social capital) and 'networks' (as the structural dimension of social capital), are discussed in the subsequent sections.

2.3.5 DIMENSIONS OF SOCIAL CAPITAL

Scholars (Coleman, 1990; Fukuyama, 1995; Putnam, 2000; Valenzuela, Park & Kee, 2009) are generally unanimous on what constitutes social capital. Literature (Byeong, 2015:562) points out that 'trust' (toward networked people), 'norms' (as the relational dimension of social capital) and 'networks' (as the structural dimension of social capital) are the three main dimensions of social capital. Trust and norms are discussed briefly in the next section since they are not dimensions of interest for the current study, followed by an intensive discussion of social networks.

2.3.5.1 Trust

Many scholars conceive trust as one of the essential indicators of social capital (Coleman, 1990:139; Fukuyama, 1995:28; Lesser, 2000:7; Halpern, 2005:39, Valenzuela, Park & Kee, 2009:876). Trust has multidimensional characteristics and

cultural aspects; therefore, the previous literature on trust describes various forms according to the various perspectives of economics, psychology, sociology, etc. (Rousseau et al., 1998:394). Prior studies (Dakhli & de Clercq, 2004; Valenzuela, Park & Kee, 2009) categorize trust into two types: generalized trust and institutional trust.

2.3.5.1.1 Generalized trust

Generalized trust is related to how much people in a given area trust each other. This type of trust is interpersonal and can be assumed to reduce uncertainty and facilitate interaction and communication among individuals (Beugelsdijk & Smulders, 2009:27). Local contractors in South Africa tend to trust each other more than foreign-based contractors. This tendency is a problem not only for foreign international contractors but for foreign national contractors as well. This is partly due to the fact that in South Africa government expects the successful bidder to outsource 30% of the work to locally-based emerging construction firms.

2.3.5.1.2 Institutional trust

Previous research on trust suggests that trust from both within and between organisations lessens the need for tight monitoring and control mechanisms and increases freedom from rigid rules (Dakhli & de Clercq, 2004:112; Valenzuela, Park & Kee, 2009:876). This enhances idea generation by facilitating interactions between individuals within organisations, as well as inter-organisational cooperation. According to Knack and Keefer (1997:1257), if organisations within a country have a high level of mutual trust, confidential information exchange between them is facilitated. This is because the risk that one actor will opportunistically exploit confidential information to the other actors' disadvantage is reduced (Dakhli & de Clercq, 2004:113; Valenzuela, Park & Kee, 2009:876).

Institutional trust is related to how much people in a given area trust organisations and institutions. If people think their organisations or institutions contribute to the mediation of disputes and protect actors against breaches of contracts, they are more willing to interact with other actors. Putnam (2000:128) argues that a society that relies on

generalized reciprocity is more efficient than a distrustful society and honesty and trust lubricate the inevitable frictions of social life. Fukuyama (1995:29) regards trust and honesty as drivers for reducing transaction costs. Thus, trust is considered for social exchange and communication. According to the brief description of trust above, it can be said that these two types of trust, generalized and institutional, contribute to reducing transaction costs, encourage firms to cooperate and share various resources, such as information, skills and knowledge, and reduce the need for interventions to prevent dishonesty.

2.3.5.2 Norms

Norms refer to the general tendency of firms to cooperate and to weigh the public good against self-interest (Knack & Keefer, 1997:1260; Dakhli & de Clercq, 2004:114; Valenzuela, Park & Kee, 2009:876). These informal and/or non-written mechanisms are often said to coexist with associational activities because people who want to improve societal well-being may be more willing to participate in various activities. However, previous studies suggest that there are distinct components of norms and associational activities. For instance, the main goal of some associations or organisations is to maximize the benefits to their members, and thus associations or organisations operate as special interest groups.

Furthermore, this private profit maximizing by some associations or organisations may increase social costs. Thus, it can be argued that the concept of civic norms is different from the concept of associational activities. The benefits of associational activities depend on individual organisations, despite the fact that simply being a member of an organisation increases the level of associational activities and civic participation.

2.3.5.3 Networks

Social network researchers regard relationships, or ties, as the basic unit of analysis. A network can be defined as the pattern of ties linking a defined set of persons or

social actors (Granovetter, 1973:1361; Bourdieu, 1986:248; Coleman, 1990:241; Putnam 1993:15; Simpeh, 2011:4) and deals with social relationships that help build trust and cohesion that are essential for running a successful venture (Simpeh, 2011:4). In a social network each person can be described in terms of his or her links with other people in the network. In social network research, organisations are viewed as clusters of people joined by a variety of links.

Zheng (2010:152) argues that though an individual's network size does not represent any specific type of social network, it has been considered as one of the most common variables having a significant influence on the decision to engage in innovation. The underlying assumption of network size, however, is quite straightforward: increasing direct or indirect relationships means increasing the amount of information and chances to encounter new ideas and resources (Nahapiet & Ghoshal, 1998:241; McFadyen & Cannella, 2004:738; Simpeh, 2011:4).

This underlying assumption, in ECFs' context, simply means that in order for ECFs to access better resources, such as skills and knowledge, collaboration with other actors in the industry is important. A useful way to differentiate social networks is the weak-tie-versus-strong-tie typology first advocated by Granovetter (1973:1360). These concepts are briefly discussed in the next section in order to provide more clarity, as they are often used in social network theory debates.

2.3.5.3.1 Strong ties

Strength of ties, according to scholars (Williams, 2005:23; Simpeh, 2011:4), generally refers to the degree of intimacy among people with whom individuals interact. Granovetter (1973:1361), however, defines the strength of a tie as "a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutually confiding), and the reciprocal services which characterize the tie." Strong ties generally refer to characteristics of kinship, friendship, and traditional community ties, and are seen as valuable because those with whom a person is connected in this way are

reliable providers of a range of resources in times of need (Liff & Steward, 2001:317; Levin & Cross, 2004:1480; Simpeh, 2011:4).

Strong ties have value in terms of sharing information and gaining help relevant to innovation, as in new developments, ideas, processes and or technologies. Hansen (1999:82) examined the role of weak and strong ties in sharing knowledge across organisation subunits and concluded that "having weak inter-unit ties speeds up projects when knowledge is not complex but slows them down when the knowledge to be transferred is highly complex". Hansen's (1999) work can be confirmed by the fact that many ECFs in South Africa often tend to rely on their own capabilities. An example is when ECFs execute simple projects such as water and sewer reticulation and complete them faster but will rather want to collaborate with more experienced and established contractors on complex projects such as a highway bridge construction, high-rise building, etc.

2.3.5.3.2 Weak ties

There are also many other scholars who emphasize the advantages of weak ties on knowledge sharing, particularly on technology adoption. In the information sharing context, significant attention has been given to the importance of the "strength of weak ties" initially proposed by Granovetter (1983:208). Granovetter (1973:1362) asserted that weak ties are more effective than strong ties in the information diffusion process in that whatever is to be diffused can traverse greater social distances and reach a larger number of people. In particular, the importance of weak ties has been shown in the situation of novel information diffusion such as finding jobs (Granovetter, 1973:1363; Lin, 2001:272; Simpeh, 2011:4). In the context of ECFs, weak ties are particularly well-suited for sharing explicit knowledge at the levels of inter-firm organisations (Hansen, 1999:84; Mu et al., 2008:94). The main point is that weak ties usually play a role as bridges that help firms bring new ideas from the external environment.

2.3.5.3.3 Bonding ties

Scholars (Putnam, 2001:18; Bhandari & Yasunobu, 2009:488) contend that 'bonding ties' (often expressed as 'bonding social capital', internal social networks or informal ties) refer to connections among people with similar personal characteristics (for example, job, class, ethnicity and education). Bonding (or inclusive) ties are good for building trust and solidarity among actors and facilitating the pursuit of collective goals (Putnam, 2001:18; Adler & Kwon, 2002:39; Bhandari & Yasunobu, 2009:488). Interpersonal channels are more effective in persuading an individual to accept a new idea, especially if the interpersonal channel links two or more individuals who are similar in socio-economic status, education, or other important ways. Also, the high risk and uncertainty contained in newness such as innovation, new ideas, or new technologies were more reduced by pre-existing relationships, leading to higher degrees of trust and subjective norms (Chou, Cheng & Pan, 2006:251). Innovation adoption in ECFs is effectively facilitated by the adoption of peers who share similar interests and have much in common.

2.3.5.3.4 Bridging ties

In contrast to bonding social capital as a resource located in the internal linkages of individuals, 'bridging ties' (often expressed as 'bridging social capital'; external social networks or formal ties) focus on external relationships (Burt, 1992:57; Monge, Hartwich, & Halgin, 2008:43). Bridging (or exclusive) ties refer to more distant or loose ties that bring individuals or groups together who did not previously know each other by establishing new ties or relationships.

Bridging networks with people across diverse groups or institutions helps actors utilize a wide range of resources (for example, new information and ideas) available for reaching either their private or collective goals (Bhandari & Yasunobu, 2009:450). The advantages of bridging ties are also explained by the concept of 'structural holes'. Various scholars (Granovetter, 1973:1363; Burt, 1992:57; Monge, Hartwich, & Halgin, 2008:43) have often used the concept of 'structural holes' to describe the individual's ability to access external resources. As a matter of fact, the advantages and benefits of 'structural holes' overlap to a considerable extent with those of bridging ties.

The concept of ‘structural holes’ is differentiated from ‘weak ties’ in that it stresses social networks as a function of brokerage opportunities rather than the strength of the tie and views a lack of connections (often called ‘sparseness’) between separate clusters in social networks as a source to create social capital (Granovetter, 1973; Burt, 1992; Monge et al., 2008). In the context of inter-firm networks, Tsai & Ghoshal (1998:467) found that social interaction in the form of bridging ties of team members with other business units directly contributed to an increase in information exchange, which consequently had a significant effect on product innovation. The potential for ECFs to innovate, therefore, seems likely when more and more of these owner/managers interact (network) with different owner/managers from different groups who exchange new information at all times.

2.4 CONTESTED DEFINITIONS OF SOCIAL CAPITAL

Despite the popular use of the concept, there is still lack of agreement on the definitions and measurements of social capital, partly due to its multidimensional characteristics (Putnam, 2002:12; Beugelsdijk & Smulders, 2009:54). Thus, the definition and measurement of social capital depends on individual researchers and whether they focus on the substance, the sources, or the effects of social capital (Adler & Kwon, 2002:19). Further, social capital can also be described as the resource embedded in the social relationship or, as Putnam (2002:6) indicates, it can be embedded in either formal networks, such as political parties, or informal networks, such as friendships, and can be exploited/harnessed for the attainment of some specific goals.

Embedded in these social ties is group communication that mutually benefits the actors through more efficient collective action and better access to intangible resources such as knowledge, expertise, experience and skills. Since ECFs rely heavily on snowballing to access information on opportunities, tenders, funding and intangible resources, the vitality of social capital in this regard cannot be overemphasized. Given that the definition of social capital depends on an individual researcher’s views the next section investigates the various views that scholars have about social capital.

2.4.1 THE BONDING VIEW

Bonding social capital (or exclusive social networks) is about the closeness of members of very small groups or organisations (Putnam, 1993:129; Burt, 2007:38; OECD, 2007:78; Purdue, 2007:10; Laser & Leibowitz, 2009:97). Other scholars (Coleman, 1990; Fukuyama, 1997; Putnam, 2001) offered an internal view of social capital, which suggests that social capital is not only the result of the structure of the linkages between actors within the collective, but also the result of features that give the collective cohesiveness and its associated benefits and thereby facilitate the accomplishment of collective goals (Coleman, 1990:243; Fukuyama, 1995:29; Putnam, 1995:665, Bhandari & Yasunobu, 2009:488). In ECFs' context this kind of view always manifests itself in some kind of what is referred to in South Africa as a kind of "*broederbond*" relationship. In this typical relationship information flow is restricted to the minority individual members who are governed by strict rules and obligations.

2.4.2 THE BRIDGING VIEW

Prior studies with this external perspective (Bourdieu, 1986:247; Baker, 1990:621; Portes, 1998:3; Burt, 2007:89; Acquaah, 2008:14) suggest that the actions of individuals or groups can be facilitated by their direct and indirect networking with other actors in a social network. This view on social capital focuses on an actor's relations with other actors. In fact, the ability of ECFs to tap effectively into other firms or competitors is one of the critical advantages of emerging construction firms that cooperate with other organisations.

These two broad types of social capital (the bonding view and bridging view) have opposite views of the success of organisations in achieving their goals. Bonding social capital refers to social links of people based on a sense of common identity, as in the case of family, close friends and people who share common culture or ethnicity (Putnam, 1993:5; Laser & Leibowitz, 2009:87).

A potential benefit of bonding social capital can be seen in the closeness of members of very small groups, who support each other emotionally, socially and economically (OECD, 2007:81). By contrast, bridging social capital refers to links that extend beyond a shared sense of identity. In this context, Burt (2007:7) underlines the influence of outside contacts in helping such small groups accept new ideas and move ahead. Bridging social capital, Purdue (2007:10) asserts, is a "social oil" type of trust, embedded in denser social networks. The ability to "bridge" allows different groups some advantages in the creation of social capital for both the individuals who bridge the networks and their networks in general (Dahal & Adhikari, 2008:5; Laser & Leibowitz, 2009:88). In the context of ECFs the ability to "bridge" enables ECFs to gain better knowledge and intellectual capital, which they would not necessarily gain in closed or bonded networks.

2.4.3 AN INTEGRATED VIEW

Other authors (Nahapiet & Ghoshal,1998:243; Lin, 2001:24; Adler & Kwon 2002:23; Dahal & Adhikari, 2008:5) offer a neutral take on the internal vs. external perspectives. These scholars regard the distinction as a matter of different frameworks and units of analysis and describe the two views (internal and external) as not mutually exclusive. The integrated view of social capital offers ECFs the opportunity to explore both internal and external resources. This view on social capital implies that its definition can differ depending on the level of analysis. Table 2.1 below summarizes the major views or definitions of social capital reviewed.

Table 2-1: Major views/definitions of social capital

View	Author(s)	Definition of social capital
INTERNAL	Coleman (1990:302)	Defined by its function; consists of aspects of a social structure; facilitates certain actions of individuals within the structure.
	Fukuyama (1997:378)	A 'radius of trust', where a circle of people operate according to certain co-operative norms.
	Putnam (2001:167)	Social networks and the norms of reciprocity and trustworthiness that arise from them … that can improve the efficiency of society by facilitating coordinated actions.
EXTERNAL	Bourdieu (1986:243)	The aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition.
	Baker (1990:619)	A resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors.
	Portes (1998:6)	The ability of actors to secure benefits by virtue of membership in social networks or other social structures.
INTERGRATED	Lin (2001:24)	Resources embedded in social relations and social structure, which can be mobilized when an actor wishes to increase the likelihood of success in a purposive action.
	Adler and Kwon (2002:23)	The source lies in the structure and content of an actor's social relations. Its effects flow from the information, influence and solidarity it makes available to the actor.
	Zikmund et al. (2013:40)	The resources embedded in the social networks that an individual has which can be accessed whenever needed.

In sum, from the variety of views and/or definitions of social capital in Table 2.1 above, it is concluded that social relationships are a common element across definitions and that the use of the term social capital refers to the resources (for both private and collective goals) that emerge from one's social ties (Nahapiet & Ghoshal, 1998:245; Bhandari & Yasunobu, 2009:486). Bhandari and Yasunobu (2009:487) further argue that the main difference between these definitions is that they treat social capital as either personal resources or social resources. In treating social capital as personal resources ECFs will rely more heavily on close acquaintances to use such resources for private gain whereas the treatment of social capital as a social resource will result in ECFs promoting the welfare of all members of the social network.

Through analysing the various definitions, there are two different typologies of social capital that were examined throughout the literature. In fact, social capital was perceived as either a public or private good. The public social capital refers to those assets that flow to and benefit all individuals that are part of a community, whereas the

private one refers to the potential goods that a focal individual may derive from its social network as an exclusive private property. Social capital in this study is approached as a public good, which benefits ECFs in order to attain their specific goals- firm performance and subsequent wealth for their owners and general members of the social network.

In the context of this study, one can contend that social networks constitute the social capital of ECFs. **For the purpose of this study social capital is defined as a collective asset comprised of social relations embedded within and derived from the networks of relationships possessed by the firm which can be utilized to maximize its value.** This definition is very similar to those of Nahapiet and Ghoshal (1998) and Lin (2001), since it stresses an actor's ability to gain valuable resources.

Thus, it is necessary that ECFs engage in social relationships to gain valuable resources that increase their competitive advantage. Accordingly, the study's working definition suggests that ECFs are expected to engage in the maintenance or extension of relationships to gain access to valuable resources and increase their success. That said, these resources can also be serendipitously gained through social relations. That is, the resources can be a by-product as much as they can be the result of social interactions. For example, ECFs' owner/managers may gain valuable innovation information or guidance while participating in some activities whose main purpose is not to share innovation-related information. As indicated, the definition of social capital depends on the researcher's analytical level. Previous researchers have studied social capital at multiple levels, including aggregated levels of societies, nations and regions and individual firms and organisations. The next section delineates studies of social capital at various levels.

2.5 STUDIES OF SOCIAL CAPITAL AT VARIOUS LEVELS

The importance of social capital, and by extension networks, has been shown by scholars who have studied this concept from various levels. These various scholars and their work are reflected in sections below.

2.5.1 STUDIES AT THE AGGREGATE LEVEL OF SOCIETIES, NATIONS AND REGIONS

Scholars (Bourdieu,1986:247; Coleman,1990:243; Fukuyama,1995:27; Knack and Keefer,1997:1268; Putnam, 2000:221; Beugelsdijk & Smulders, 2009:43), maintain that studies at the aggregate level of societies, nations and regions generally regard social capital as a driver of innovation and economic performance. These studies contend that where nations and societies cooperate for a common goal they tend to be innovative and perform better economically in their respective regions. These scholars not only examine the impact of social capital on the well-being of regions or societies, but also focus on the role of social capital in the process of regional, societal, or national development.

Scholars (Saxanian,1994:61; Beugelsdijk & Smulders, 2009:43), for instance, suggest that an industry structure characterized by mutual trust, cooperation and intensive interaction among local small firms and entrepreneurs is positively correlated with regional economic development and entrepreneurial vitality. In ECFs' context it is clear that smaller firms not only contribute to the regional economic development but also grow in size and improve their profitability.

2.5.2 STUDIES AT INDIVIDUAL FIRM AND ORGANISATIONAL LEVEL

Ozman (2009:41) postulates that network research at the firm level is concerned with uncovering the benefits derived from networks, measured mostly as economic or firm performance. Nahapiet and Ghoshal (1998:248) and Freel (2000:256) indicate that studies at firm and organisational levels regard social capital as the organisational value shaped and accumulated through the relationships between its members in order to accomplish collective goals. According to some scholars (Coleman, 1988; Burt, 1992; Yli-Renko, Autio & Sapienza, 2001; Zheng, 2010), studies at the level of the individual firm regard social capital as the resources embedded in an individual firm's formal and/or informal relationships with other actors.

In short, social capital is argued from various sources. First, much of social capital is embedded within networks of mutual acquaintance and recognition. Second, social capital is available through the contacts or connections networks bring. Third, social capital can be derived from membership in specific networks, where such a membership is restricted (Nahapiet & Ghoshal, 1998). The next section examines the general theoretical aspects of social capital, especially the various perspectives that govern the construct.

2.6 GENERAL THEORETICAL ASPECTS OF SOCIAL CAPITAL

Social capital originated with the criticism of two traditional views that explain and describe social action (Coleman, 1988). The two broad theoretical models that underpin the concept of social capital are the Neo-Marxist model, as typified by Bourdieu (1986), and the Neo-Liberalist model, as postulated by Coleman (1990).

2.6.1 NEO-MARXIST MODEL

Marxism conceptualizes class as an objective structure of social positions and holds to a unidimensional conception of social stratification and cleavage, with class relations being paramount in economic transactions (Giddens, 1971; Zheng, 2010). Giddens (1971) asserts that in Marx's theory, the essential logic of class relations and class conflict is one of exploitation, where political and ideological domination are interpreted as merely the means by which exploitation is secured and classes are an expression of the social relations of production. Bourdieu (1986:243), writing from within a broadly Marxist framework, began by distinguishing between three forms of capital: economic, cultural and social.

A basic concern was to explore the processes leading to unequal access to resources and differentials in power and the ways in which these fed into class formation and the creation of elites. Bourdieu understood social capital to be "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu,

1983: 249). The application of this model in ECFs will explain why at any given time one contractor will dominate others by receiving more tenders or housing subsidy/tender allocations than other contractors. This unequal awarding of state tenders has often been the cause of tension amongst contractors in the industry, with some contractors being associated with a particular political party or group of politicians in an area.

2.6.2 NEO-LIBERALIST MODEL

The foundations of modern economics, and of the ideology of neoliberalism, go back to Adam Smith and his great work, The Wealth of Nations. Smith (1910) laid the foundations of neo-liberalism with his argument that free exchange was a transaction from which both parties necessarily benefited, since nobody would voluntarily engage in an exchange from which they would emerge worse off. Neoliberalism rests on the "elementary proposition that both parties to an economic transaction benefit from it provided the transaction is bilaterally voluntary and informed". The consequence of this, in ECFs' contexts, means that any restriction on the freedom of trade will reduce their wellbeing by denying ECFs the opportunity to improve their situation.

Coleman's (1988:115) contribution to the development of the notion of social capital was to theorize it in a way that illuminated the processes and experiences of non-elite groups. In other words, he argued that those living in marginalized communities or who were members of the working class could also benefit from its possession. Drawing upon a base of rational choice theory, Coleman (1988:110) looked to social capital as part of a wider exploration of the nature of social structures. He argued that social capital was defined by its function. "It is not a single entity, but a variety of different entities, having two characteristics in common: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman, 1990; Zheng, 2010).

The Neo-Liberalist model in ECFs' context will suggest what most contractors often request from state departments: That the state's procurement should be rationed

among all active and able contractors in a given geographical area. What this means is that the awarding of tenders, unlike under the Neo-Marxist model, should not be heavily loaded to one contractor at the expense of the bulk of other contractors. Neither the Neo-Marxist model nor the Neo-Liberalist model can fully explain social action, since the former neglects the fact that people's actions are also controlled and redirected by social contexts including trust, social networks and social pressure and the latter treats actors as not having any internal motives for action (Coleman,1988; Lin, 2001; Bhandari & Yasunobu, 2009). The preceding general discussions on social capital provided the foundation for examining Nahapiet and Ghoshal's (1998) social capital framework with a view to propose a social capital framework for ECFs.

2.7 THEORETICAL FRAMEWORK

While borrowing from the social network theory, this section employs the social capital framework of Nahapiet and Ghoshal as a framework for understanding the complexity of social capital. The theory suggests that social capital can be conceived as the actual and potential resources emerging from networks of social interaction. The major constructs of social capital as identified by Nahapiet and Ghosal (1998) are relational, structural and cognitive (*see Figure 2.1*).

First, the relational dimension refers to the norms, expectations and levels of trust or respect that are developed through repeated interactions within the network. Here, constructs such as obligation and expectation, as well as social norms and sanctions, merge under the relational label (Nahapiet & Ghosal, 1998:244). This dimension is not of interest for the current study.

Second, the structural dimension (the current study's area of interest) is the overall configuration of the network at hand and the access to resources that it enables. In this regard, information channels provide access to information as well as other kinds of resources that may constitute the basis for action. As Tsai and Ghoshal (1998:465) point out: "The location of an actor's contacts in a social structure of interactions provides certain advantages for the actor. People can use their personal contacts to

get jobs, to obtain information, or to access specific resources". For ECFs, social interaction may constitute a resource, particularly when it comes to achieving competitive advantage through the sharing and creation of knowledge. The involvement of ECFs in networks reflects positively on their business performance, as they can obtain support for their activities in the domestic construction market and enhance turnover, employment, market share and profit (Džunić, 2010:144).

Finally, the cognitive dimension encompasses the set of interpretive schemes, codes and languages that agents from the same network share and refer to in order to make sense of their behaviours and of the environment (Nahapiet & Ghoshal, 1998:244). It simply implies that possessing information about the context is not enough, as agents also need to be able to interpret it correctly and respond accordingly (Hermans & Lederer, 2009:5; Camps & Marquès, 2011:8). This dimension is also not of interest for the current study.

In the context of organisations, social capital has been used to explain the creation and sharing of organisational knowledge. Thus, organisations are seen as social collectives and knowledge-creating entities (Hermans & Lederer, 2009:1). There are two types of knowledge: tacit and explicit. Tacit knowledge is subjective and experience-based knowledge that cannot be expressed in words, because it is context specific (Venter, Urban & Rwigema, 2012:43). In the context of ECFs, this includes cognitive skills such as technical know-how which involves how specific construction activities are carried out.

Conversely, explicit knowledge is objective and rational knowledge that can be conveyed in words, sentences, numbers or formulas (Venter et al., 2012:43). Knowledge management is a process of generating value for an organisation and as such requires a commitment from organisations to continuously create new task-related knowledge and disseminate it throughout the organisation (Nonaka & Takeuchi, 1995:26; Goh, 2005:6; Dahal & Adhikari, 2008:5). This implies that the greater the social capital networks in ECFs, the stronger the influence of organisational

capital on knowledge-producing capacity of ECFs. The choice of Nahapiet and Ghoshal's (1998) social capital framework *(Figure 2.1*) as an analytical framework in this research, over a number of competing models, is based on the following three reasons noted by Johnson (2010:29):

(1) The framework has been developed from an organisational perspective.

(2) The combined internal and external appreciation of social capital is suited in both internal group dynamics (i.e., within a firm), and external relationships that may exist in a business community supply networks or contracted arrangements.

(3) The model offers a reasonable and comprehensive conceptualization of social capital that accommodates the major concerns of the extant literature.

Figure 2-1: Nahapiet and Ghoshal's social capital framework

Source: Nahapiet and Ghoshal (1998:242)

Nahapiet and Ghosal (1998:244) acknowledge that social capital takes many forms and “each of these forms has two characteristics: (1) it constitutes some aspects of the social structure and (2) it facilitates the action of the individual within the structure”. According to the structuration theory of Giddens (1979:17), human beings are seen as being thoughtful, knowledgeable and creative. Giddens (1979) further believes that people rarely act in self-conscious ways or perform fully conscious actions. Rather, people perform semi-conscious practices and discursive thinking does not take place with every action (Inglis & Thorpe, 2012:54). It can be argued, consistent with the structural dimension of social capital that ECFs operating within a particular structure will behave and act in a particular manner that they would necessarily not act if they (ECFs) were not members of a particular network.

Although Nahapiet and Ghosal (1998) used the terms ‘structural’ and ‘relational’ dimensions, the main components were not significantly different from the previous components discussed in Section 2.3 above. That is social networks, trust and norms are still key elements of social capital in their classification. The only difference is in the ‘cognitive’ dimension. The cognitive dimension refers to “resources providing shared representations and systems of meaning among parties” (Nahapiet & Ghosal, 1998:244; Yildirim, 2012:9).

The cognitive dimension is often represented by common language and codes that are shared only among members in a certain group or firm (Bresne, Edelman, Newell, Scarborough & Swan, 2004:17; Zheng, 2010:157). Zheng (2010:157) contends, however, that comprehensive literature reviews relevant to social capital and innovation indicated that the cognitive dimension has not been sufficiently researched and there is little agreement about it. In addition, the cognitive dimension would hardly be detected unless a study focused on the interactions and communications only among members in a group or intra-firm networks in limited contexts. In other words, if the researcher was able to confine ECFs’ networks or members to a certain context, considering the cognitive dimensions would be beneficial for a better understanding of the effect of social networks on innovation. The cognitive as well as relational

dimensions of social capital are, however, not considered for the purpose of the current study.

2.8 MEASUREMENT OF SOCIAL CAPITAL NETWORKS

The complexity of the social capital concept is no doubt extremely visible in its measurement. To illustrate such complexity Fukuyama (2001:13) stated that “one of the greatest weaknesses of the social capital concept is the absence of consensus on how to measure it”. Putnam (1993; 1995; 2000) used a number of different indicators to quantify the concept, like measures of community or organisational life; measures of engagement in public affairs; measures of community volunteerism; measures of informal sociability and measures of social trust. The previous section indicated that definitions of social capital vary greatly because the multidimensional characteristic of the concept generates inherent difficulties in adopting a list of social capital indicators. Instead, various conceptual and operational definitions of social capital have been developed (Grootaert & Bastelaer, 2002; Zheng, 2010).

Despite this difficulty in measuring social capital, many prior empirical studies have used various indicators of social capital in their conceptual framework (Putnam, 1995; Fukuyama, 2001; Grootaert & Bastelaer, 2002; Zheng, 2010). Grootaert and Bastelaer (2002:22) provide four categories of social capital indicators: horizontal associations, civil and political society, social integration, and legal and governance aspects. Each category contains various specific indicators. Indicators of horizontal associations are typically collected for analysis at the individual (micro) level within a country. However, the other sets of indicators are calculated at the national level for the cross-country analyses (Grootaert & Bastelaer, 2002:23). This study’s approach relies on social network analysis to measure the return on ‘social capital’ at the micro-level. Thus, for the purpose of this study the choice of social networks is more on the micro level as we attempt to understand the influence of social capital networks on innovating ECFs.

Social capital amongst ECFs for the purpose of this study shall be measured using the following individual (micro) level indicators adapted from Grootaert and Bastelaer's (2002:22) categories:

- Social media activity (Facebook, YouTube, Blog, LinkedIn, etc.).
- Associational activity (horizontal, civil, political and mandatory/legal association).
- Number of networking activity and ties (the number of network ties engaged in with different actors as well as the interaction frequency between the focal firm and these actors, contact times, knowledge exchange, reciprocal activity). The number of ties or network range (heterogeneity) is an indication of the structural dimension of social capital, whereas the interaction frequency or intensity represents the relational dimension (Hansen, 1999:89; Watson, 2007:853).

2.9 PRACTICAL APPLICATION OF SOCIAL NETWORKS

Attention to networks is powered by the notion that firms cannot survive and prosper solely through their individual efforts and that each firm's performance depends upon the activities and performances of others. Hence the nature and quality of the direct and indirect relationships that a firm develops with its counterparts is fundamental to managing complex networks. ECFs must combine their individual competencies and corporate competencies in ways superior to those of competitors in order to achieve superior performance. Social capital has become a frequently used concept when social scientists explain innovative processes and economic development at various levels, such as within individual firms and at regional and societal levels in the new knowledge economy. The concept of social capital has been adopted in a wide range of arenas and organisational practices, including recruitment processes, knowledge management and innovation (Bresne et al., 2004:38).

Social capital has two major distinguishing benefits. First, social capital facilitates information flow (Portes, 1998:15; Burt, 2000:347; Lin, 2001:37; Adler & Kwon, 2002:23; Adam & Urquhart, 2009:6; Bhandari & Yasunobu, 2009:489). In imperfect market situations such as the construction sector, where everyone is not optimally

connected, social ties can provide an individual firm with useful information about opportunities to access resources otherwise not available to competitors. That is, more ties may mean more opportunities to access diverse information in comparison to those having fewer tie connections (Lin, 2001:38). Social control is the second benefit of social capital. It is closely related to rule enforcement. Kaasa (2009:220) expressed it as a social contract or unwritten rule. In ECFs' context this social contract helps to assist associational members in transacting with each other in a fair and transparent manner. Building a set of obligations and trust from actors, individuals, or groups can establish greater power to control actors' behaviours (Bourdieu, 1986:36; Coleman, 1988:97; Putnam, 2000:38; Kaasa, 2009:220). Such power benefits enable actors or firms to get things done smoothly and to achieve their goals (Adler & Kwon, 2002:25).

The widespread interest in social capital and its application resulted in cost-benefit analysis of the concept. Theoretically speaking, advantages drawn from social capital in the context of ECFs are as follows:

- It brings together social support, integration and social cohesion, creating organized entities working harmoniously toward a common good.
- It is an important base for cooperation across sectors and power differences and an important product of such cooperation.
- It is crucial for social wellbeing (trust is of special importance, while other aspects are more instrumental).
- It is the only type of capital that is in its nature cost-free and therefore accessible to emerging construction firms.

2.9.1 FACTORS PROMOTING SOCIAL CAPITAL IN ORGANISATIONS

Nahapiet and Ghoshal (1998) propose four relevant factors (*Figure 2.2*) that develop social capital in an organisational setting. These factors are stability, closure, interdependence and interaction. In particular, these drivers of social capital entail the following:

- **Stability:** The length of time that members of a group have had to develop their relationships. Time allows the building of strong bonds and ties in a community. High degrees of stability increase the propensity to build stocks of social capital in three dimensions: promotes the creation of networks and relationships, allows people to share experiences which drive same vision and language, and facilitates the creation of trust and norms (Yildirim, 2012:9). Stable ECFs are seen by long-term survival in the industry, as opposed to those that fail within their first three years of existence.

- **Closure:** Closure refers to the existence of dense social network boundaries that distinguish members of a group from non-members. Network closure leads to improved communication and sanctions that make trusting another person in the network less risky (Burt, 1992:30). Closure, as in the case of bonding social capital, facilitates the development of trust, norms, identity, and shared codes and languages (Nahapiet & Ghoshal, 1998:245; Yildirim, 2012:9). In open structures (or bridging social networks), violation of norms is more likely to go undetected and unpunished and consequently, people will be less trusting of one another, weakening social capital.

- **Interdependence:** Interdependence between members is key to building social capital. The degree of interdependence refers to shared goals and the concern for the success of the organisation shared by members of a collective entity. Therefore, high levels of mutual interdependence help social capital formation, especially in the relational dimension (Nahapiet & Ghoshal, 1998:251; Yildirim, 2012:9). ECFs that collaborate and are interdependent work with each other and sometimes share resources that are not necessary to have on a permanent basis. For example, most ECFs cannot afford the services of a full time quantity surveyor but would generally share such service and contribute proportionally toward the costs.

- **Interaction:** Interaction refers to the frequency with which members of a network communicate with each other. It reflects the quantity, quality, direction

and strength of the relationships among them. Ongoing higher levels of social interactions strengthen social ties and thus social capital formation (Nahapiet & Ghoshal, 1998:253). Interaction develops structural and relational social capital, but also facilitates the development of shared codes and language associated with cognitive social capital. The latter is created through communicative language, narratives and codes which influence perceptions of meaning and reality in relationships (Davenport & Daellenbach, 2011:58). In ECFs' contexts, constant interaction not only builds capacity but also serves as "social oil" that lubricates relations and cements the bond among collaborating firms.

Figure 2-2: The effect of drivers on social capital dimensions

Source: Camps and Marquès (2011:39)

As indicated in previous sections, the study's main area of focus is the structural dimension of social capital. Attention to networks is powered by the notion that ECFs cannot survive and prosper solely through their individual efforts and that ECFs'

performance depends upon the activities and performances of other ECFs either through bonding or bridging social capital or both.

2.9.2 SOCIAL CAPITAL, INCLUSIVE AND EXCLUSIVE SOCIAL NETWORKS

In the context of the current study, aligning Nahapiet and Ghoshal's (1998) dimensions of social capital within the broader framework of inclusive and exclusive networks could provide a number of useful insights in relation to the business performance of ECFs. As stated in Chapter 1, networks are the vital antecedent to innovation. The consequence of innovation is improved firm performance, with competitiveness as a moderating variable. Thus, social networks as a dimension of social capital have significant effects on resource exchange.

According to Tomlinson (2011:7), the underlying relational dimension of social capital manifests in inclusive structures, particularly the reciprocity of participating firms in their interactions. The structure of relations, which describes patterns of relations between firms, has an impact on economic performance (Džunić, 2010:144). For example, Anne (2001:328) argues that exclusive social networks combine both high gains from trade and low enforcement costs, which affect economic performance positively.

The degree of openness of a social network, Anne (2001:329) elaborates, is limited by the network's capacity to process information about members' past behaviour and trustworthiness. Conversely, the closed nature of social networks is associated with rather poor economic performance. In this regard, while inclusive social networks provide a sense of collective identity, they may lack the organisational stability and ability to formulate and pursue long-term organisational objectives (Tomlinson, 2011: 5). Such networks (inclusive structures) limit the opportunity for ECFs to obtain information about available funding, tenders and exploit opportunities. Moreover, closed social networks may remain a source of competitive advantage only as long as they enable organisations to benefit from areas of uncertainty (Comet, 2009:412).

2.10 CONCLUSION

Krebs' (2008:39) opening remark in this chapter remains the central tenet toward understanding the role of social capital within the firm and across the firm's border to other firms. Attention to networks is informed by the notion that firms cannot survive and prosper solely through their individual efforts, and that the performance of each firm depends upon the activities and performance of other firms within the network. Hence the nature and quality of the direct and indirect relationships that a firm develops with its counterparts, as Newton (2006) observes, is fundamental to managing complex networks.

Although social capital is said to share many of the features of other forms of capital, including financial, it is also clear that it has a number of distinctive qualities (Adler & Kwon, 2002:22; Zheng, 2010:157). First, it is not a form of capital that is possessed individually but it is, instead, a form of 'collective good' (Portes, 1998:17; Tomlinson, 2011:7). Second, its sources and effects are inextricably linked to the development and maintenance of social ties. One implication of this is that social capital requires 'maintenance' of the social relationships on which it depends (Adler & Kwon, 2002: 22). Another implication is that the exclusionary effects of close social ties cannot be ignored (Adler & Kwon, 2002: 22; Tomlinson, 2011:7). Third, because of its intangible and ephemeral qualities, social capital is difficult, if not impossible, to quantify and measure.

Review of literature suggests that the benefit of social capital revolves on its capacity to provide competitive advantage through the acquisition of resources. Social capital provides knowledge-based resources, specifically intellectual capital, as well as other benefits accruing at firm level and network level trust, solidarity, privilege access to resources and other economic benefits. These benefits are necessary if ECFs are to survive in their highly turbulent environments.

This chapter critically examined the framework developed by Nahapiet and Ghoshal and the related broad constructs of exclusive and inclusive networks and offered a

proposed social capital framework for ECFs. The chapter thus provides both the proposed theoretical and methodological directions to apply in organisational contexts. The next chapter discusses the relationship between social networks (as structural dimension of social capital) and entrepreneurship (as an innovative process) and seeks to determine how ECFs can benefit from internal and external networks.

CHAPTER 3: SOCIAL NETWORKS AND ENTREPRENEURSHIP

"Economic development can be directly attributed to the level of entrepreneurial activity in a country"

(Schumpeter, 1934)

3.1 INTRODUCTION

The previous chapter defined the concept of social networks and provided an exposition of the social capital framework and social networks as a dimension of interest for the current study. Measurement of social networks, its benefits and its practical application were examined to offer a better understanding of what emerging construction firms (ECFs) can gain from this form of capital. The conceptual framework advanced in Chapter 1 argues that when ECFs engage in innovative activities and rely on social networks (internally and/or externally) they will be more competitive and enjoy a better firm performance than their rivals. The researcher argues that the current study should be able to contribute to this debate by considering the relationship between social networks, innovation, competitiveness and firm performance. Moreover, argues David (2011), the concept of network competencies and capabilities is derived (at least in part) from the Resource Based View (RBV) of the firm, a major pillar in the strategic management literature.

Based on the above this chapter describes the study's attempt to bridge the gap in the literature on social networks and entrepreneurship. The chapter will first seek to conceptualize entrepreneurship, followed by a brief discussion of the various schools of thought toward the understanding of entrepreneurship. The perspectives, challenges, classifications and role of entrepreneurship and small businesses will also be discussed. The chapter will further involve a discussion on the classification of construction companies in South Africa in order to place emerging construction firms (ECFs) in a proper perspective. The chapter finally concludes on the debate on the practical application of social networks in entrepreneurship.

3.2 CONCEPTUALISING ENTREPRENEURSHIP

The concept of entrepreneurship appears to have a long history that can be traced back to around the year 50 BC, when the term was used to refer to disposable incomes of entrepreneurial activities (Rusu et al., 2012:3571). Extant literature credits the French economist Richard Cantillon with being the first person to offer a clear conception of entrepreneurship in the 17th century (Venter, Urban & Rwigema, 2012). To this extent entrepreneurship is a concept frequently associated with diverse areas such as the knowledge economy, innovation, profit-making and, specifically in South Africa, tenders. Mncube (2012:1) uses the term *tenderpreneurship* to describe the situation in which government officials, politicians, business people and those who are politically well connected to the ruling party use their influence and secure lucrative state contracts and tenders. It is public knowledge that the majority of South African construction businesses thrive on government contracts commonly known as tenders and such entrepreneurs have become known as '*tenderpreneurs'*.

Entrepreneurship is, however, often used without a precise definition. A consistent definition of entrepreneurship has not yet been agreed upon, therefore, empirical studies suffer from the lack of a clear definition (Iversen, Jørgensen & Malchow-Moeller, 2008:17; Stokes & Wilson, 2010:30) or it (entrepreneurship) alternatively scarcely has a common meaning because it is accorded various definitions (Filion, 1997:7; Nieman & Nieuwenhuizen, 2010:11; Venter, Urban & Rwigema, 2012:5). As a consequence, numerous approaches and measures of entrepreneurship are used in practice and these are discussed briefly in the next section.

3.2.1 APPROACHES TO ENTREPRENEURSHIP

There are various theoretical approaches that underpin the development and nature of entrepreneurship. For example, some scholars (McClelland, 1961; Lanza, 2004) theorize that entrepreneurship is a field of study that involves approaches from the psychological perspective (referring to a person's psychological and personal attributes), others (Praag, 1999; Daher, 2012) opine the economic perspective (emphasising the coordinating role of the entrepreneur in the production and

distribution of utilities in an economy) whilst Simpeh (2011:2) argues from a sociological perspective (stressing the social dimension in which entrepreneurship takes place). Kuratko (2014:8), on the other hand, provides two general approaches to entrepreneurship namely: the schools of thought approach and the process approach.

3.2.1.1 The schools of thought approach

The schools of thought approach take a macro and micro view of entrepreneurship with both emphasizing the external and internal environments respectively (Katz & Green, 2014:13; Kuratko, 2014:9).

3.2.1.1.1 The macro-view

According to Kuratko (2014:9) the macro view of entrepreneurship presents a wide range of factors that relate to success and failure in modern entrepreneurial ventures. Kuratko (2014:9) posits that while taking the external view of entrepreneurship, the macro-view is represented by three schools of entrepreneurial thought, namely:

1. **The environmental school of thought:** This school of thought looks at all the environmental factors that affect a potential entrepreneur's lifestyle. In ECFs' context most emerging contractors in South Africa have often been blamed for lack of passion for the trade, as some have established their businesses on the basis of what they perceive to be a luxury lifestyle made out of State tenders.

2. **The financial school of thought**: This view focuses on the capital seeking-procedure of the entrepreneur. The search for seed and growth, explain Kuratko and Hodgetts (2007:38), is the main focus of the entrepreneurial process. Most ECFs find it difficult to access the necessary funding, a key requirement in construction to provide the necessary guarantees and insurances for the works. This, perhaps, is a key explanation why most of the small businesses, including ECFs, never succeed beyond the first three years of their existence (Franco & Haase, 2009:507).

3. **The displacement school of thought**: This school of thought focuses on the negative side of group phenomena, where someone feels out of place or is literally 'displaced' from the group. This approach maintains that persons displaced or denied certain opportunities on social, political or economic grounds would seek out entrepreneurship as a solution. Most small businesses (*spaza* shops, hair salons, Internet cafes, etc.) in South Africa are operated by foreigners. This high influx of foreign-operated small businesses persists despite the harsh treatment meted out to these foreigners by 'angry' and 'bitter' South Africans. Foreigners persist because they feel they cannot go back home, given a number of social, political and economic conditions that define their respective countries.

3.2.1.1.2 The micro-view

According to Kuratko (2014:10) the micro view of entrepreneurship looks at the factors that are specific to entrepreneurship and are part of the internal locus of control. The micro view appears to coincide with the internal environment of small business and, unlike the macro-view, focuses on looking from the inside outward (Katz & Green, 2014:14; Kuratko, 2014:9).

Kuratko (2014:10) posits that the internal view of entrepreneurship, the micro-view, is also represented by three schools of entrepreneurial thought namely:

1. **The entrepreneurial trait school of thought:** This school of thought argues that successful entrepreneurs usually demonstrate higher level factors of achievement, passion, creativity, determination and technical knowledge. Mainstream literature (Kuratko & Hodgetts, 2007:29; Allen, 2012:5) maintains that the passion to pursue entrepreneurial objectives is a critical trait of the entrepreneur. ECFs that continue to thrive beyond their first three years of existence have shown higher levels of determination, passion and creativity.

2. **The venture opportunity school of thought**: This view postulates that the ability to recognize and develop the opportunity in the right markets and at the right time is key to entrepreneurial success. Successful small businesses are

opportunity driven (Timmons & Spinelli, 2011:49). It is the ability of entrepreneurs to identify market gaps and harness resources to exploit those gaps (opportunities) successfully for economic gain that makes them drivers of economic growth and development (Hisrich, Peters & Shepherd, 2010:99). ECFs in South Africa are failing to either spot opportunities in the markets or create their own markets which can sustain them.

3. **The strategic formulation school of thought:** This school of thought focuses on the planning process that is required for successful venture development. The view posits that the successful venture requires an interdisciplinary approach with characteristics such as unique markets, unique people, unique products and unique resources. For small businesses, strategic planning, which usually is informal and intuitive, enables them to compete against their rivals and make profit (David, 2011:13). In ECFs' context the ability to plan, and also to decide whether to collaborate and innovate or not, enables ECFs access to such unique markets, unique people, unique products and unique resources.

3.2.1.2 The process approach

This approach, unlike the schools of thought approach that analyses the external and internal environments in understanding entrepreneurship, look at the activities involved in entrepreneurship. van Aardt, Hewitt, Bendeman, van Aardt, Bezuidenhout, van Rensburg, Naidoo, van der Bank and Visser (2011:8) indicate that three approaches are most commonly used:

1. **The integrative approach**: This view analyses process elements such as the environmental opportunity, the development of new technology or an adaptation to current regulations. In the past (prior to 2000) the construction industry was not regulated, and once regulations were introduced watchdogs such as the National Home Builders' Registration Council (NHBRC) and the Construction Industry Development Board (CIDB) emerged. As a result, ECFs had to undergo a very rigorous process of adapting to ensure survival.

2. **The entrepreneurial assessment approach:** This view focuses on the individual entrepreneurial development and his responsibility and accountability for conceptualizing and implementing a new venture. New businesses are created, developed and managed for growth and profitability through the entrepreneurial process (Timmons & Spinelli, 2007:51; Nieman & Nieuwenhuizen, 2010:9; Venter et al., 2012:5). ECFs in South Africa can only fully emerge and expand if they invest in the development and growth of their businesses by investing in innovative activities.

3. **The multidimensional approach**: This view looks at interactions between the entrepreneur, the business and the environment and includes the extensive array of financial and non-financial resources that are necessary on an ongoing basis. This approach resonates with the central thesis of the current study. The study contends that when ECFs invest financially, by innovating and relying on other non-financial resources, such as social networks, which are value free, they will enjoy a better firm performance than their rivals.

Although there is no consensus on the definition of entrepreneur or its derivative, entrepreneurship, definitions of Joseph Schumpeter, Israel Kirzner and Frank Knight have become perhaps the most well-known to many scholars in recent decades. The next section reviews some of the most well-known perspectives on the definitions of entrepreneurship.

3.2.2 PERSPECTIVES TOWARDS THE DEFINITION OF ENTREPRENEURSHIP

Various scholars (Schumpeter,1934; Knight, 1971; Kirzner, 1973) have over decades shared various views about the concept of entrepreneurship and this debate seems destined to continue in decades to come.

3.2.2.1 Schumpeterian view of entrepreneurship

An early definition of entrepreneurship posited by Schumpeter (1934:9) defines entrepreneurship as an endeavour that is centrally characterized by innovation. Schumpeter defines an entrepreneur as a person who can convert a new idea or invention into a successful innovation in the economy. As an innovator and industrial leader, an entrepreneur implements change within markets, identifies market opportunities (where others see chaos) and uses innovative approaches to exploit such opportunities (Antonites & van Vuuren, 2005:257; Timmons & Spinelli, 2007:79). Schumpeter, like Kirzner (1973), does not see the entrepreneur as bearing a risk but rather engaging in a capitalist's role of generating a profit.

Schumpeter's conception of entrepreneurship, unlike Kirzner's, disrupts the market equilibrium and is usually associated with firms and leadership. Schumpeter's definition suggests that ECFs should not only be contend with the status quo but should be innovative in their markets in order to enjoy a competitive advantage over their rivals.

3.2.2.2 Knight's view on entrepreneurship

Knight (1971:11) suggests that an entrepreneur assumes the uncertainty and risk associated with unique situations, and therefore must be able to make good decisions about these uncertainties in the economy. According to Knight's definition, the function of an entrepreneur includes leadership in innovation, adaptation to change, and risk bearing in connection with unique situations (Iversen, Jørgensen, & Malchow-Moeller, 2008:25).

Knight (1971) links entrepreneurship to businesses, and in his conception, like Schumpeter's, entrepreneurship can lead to economic development. But Knight does not emphasize the contribution of entrepreneurship to economic development, a contribution widely appreciated by scholars (Gumede, 2004; Mutezo, 2005; Rogerson,

2008; Fatoki, 2011; Apulu, 2012), and only emphasizes good economic decision-making as an important role of entrepreneurs.

3.2.2.3 Kirzner's view on entrepreneurship

According to Kirzner (1973:8), the entrepreneur can earn profit by buying at low prices and selling at high prices (in another place or time); thus, his concept is regarded as an arbitrage theory of entrepreneurship. For him, the essence of entrepreneurship is the ability to identify and exploit profit opportunities, without being deterred by the possibility of failure. Kirzner argues that capitalists bear risks of failure, however, the entrepreneur does not need to possess any capital.

In the context of emerging construction firms (ECFs), Kirzner's definition places owner/managers of ECFs as middlemen who only add up a mark-up to an original price and ultimately charge a customer a higher price. Knight's definition in ECFs' context suggests that management decision making, to collaborate and innovate or not for the purpose of this study, is more key than just being entrepreneurial. Table 3.1 below gives an indication of some of the common definitions of entrepreneurship extant literature offers.

Table 3-1: Some common definitions of entrepreneurship

Definition	Author(s)	Interpretation
Entrepreneurship is a process that results in innovations which cause changes in the economic system, thereby creating and enhancing value for both owners and society.	Timmons and Spinelli (2007: 79)	This definition takes a similar view to that of Schumpeter in that ECFs are to challenge the economic equilibrium by innovating and enjoying a better firm performance.
Entrepreneurship is a process through which production factors of natural resources, human resources and capital are combined so as to manufacture a good or offer a service in order to make a profit.	Strydom (2008:7)	This definition takes a view that in order for a business to be successful an entrepreneur must take an innovative stance of combining the four factors of production to create value.
Entrepreneurship is characterized as a way of thinking and reasoning and seizing opportunity by entrepreneurs to create goods and services for customers with the intention of making profit while bearing the inherent risk	Nieman and Nieuwenhuizen (2010:9)	The implication of this definition to ECFs is that of continuous assessment of ECFs' market environments in order to identify opportunities.
Entrepreneurship is a process or an action-oriented management style which takes innovation and change as the focus of thinking and behaviour.	van Aardt et al. (2011:6)	This definition takes a similar view to that of Knight's definition in that ECFs managerial decision to collaborate and innovate becomes vital.
Entrepreneurship is a tendency of profit-seeking individuals to harmonize personal characteristics with the opportunities and challenges of the environment; to acquire and control inputs and to find innovative ways of transforming inputs into goods and services that fulfil the needs of the society.	Dzansi and Hoeyi (2014:18)	In ECFs' context this implies that ECFs must find innovative means of providing their customers with goods and services whilst also enjoying profits.

From the definitions in Table 3.1 above, it is clear that an individual's propensity to innovate remains the cornerstone of every entrepreneurial adventure. **For the purpose of this study, entrepreneurship is defined as an entrepreneur's deliberate process of creating an innovative economic organisation/network of organisations for the purpose of making profit under conditions of risk and uncertainty and remaining competitively better than others.** The lack of common definitions of entrepreneurship in literature seems not to be the only concern but the interchangeable use of the term with the concept of small businesses is another major concern despite small businesses being the product of entrepreneurship (Nieman & Nieuwenhuizen, 2010:9; Venter et al., 2012:21). The next section will first distinguish

between the two constructs and thereafter discuss what constitutes a small business, its classification, its challenges and its contribution to the economy.

3.2.3 DISTINGUISHING ENTREPRENEURSHIP FROM SMALL BUSINESS

Literature (Venter et al., 2012:9; Kuratko, 2014:15) reflects a very strong case of the many differences that exist between entrepreneurial ventures and small businesses. While the two concepts are intertwined to the extent that more often than not they are used interchangeably, as if they mean one and the same thing, entrepreneurship differs greatly from small business. It is important to mention that entrepreneurship is a process that leads to the creation of small businesses and small businesses are a subset of entrepreneurship. The important point, however, is that entrepreneurship and Small Medium Micro Enterprises (SMMEs) are interlinked so much that there is always a need to discuss the two concepts simultaneously. The differences can be grouped mainly under three categories namely:

3.2.3.1 Innovation

Venter et al. (2012:9) argue that while the entrepreneurial venture is usually based on a significant innovation, the small business is usually involved in established markets, products or services. This argument has always been levelled against ECFs in the South African construction environment that are considered to be surviving purely out of State tenders without making significant innovative means to create their own markets.

3.2.3.2 Potential for growth

Despite many businesses starting out as entrepreneurial ventures, growth is no longer pursued by the small business owner once the business has established itself, as small business owners, unlike entrepreneurial ventures, prefer operating in established markets (Venter et al., 2012:9; van Aardt et al., 2014:6). Many ECFs have often remained emerging despite having been empowered through several means by

various government interventions and this is a key concern, not only for the Ministry of SMMEs, but also for the economy as a whole.

3.2.3.3 Strategic objectives

Nieman and Nieuwenhuizen (2010:11) and Venter et al. (2012:9) posit that the entrepreneurial venture distinguishes itself from a small business by its strategic posturing (such as sustainable competitive advantage, market position, market share, etc.) and objective setting. Many small business owner-managers develop a business that suits their individual conditions, personality and lifestyle, with the intention of earning just sufficient income to meet their needs (Mahadea & Youngleson, 2014:61). Most ECFs are characterized by attributes mentioned by the latter scholars, where one finds a contractor who engages in business for the sake of securing the first payment certificate to buy and live a life of luxury.

3.3 UNDERSTANDING SMALL BUSINESSES

Small businesses play a significant role in providing employment, propelling innovation, promoting social stability and advancing economic welfare (Alsaaty, 2011:2). The contribution of small businesses (including emerging construction firms) to the gross domestic product of South Africa is between 52-57%; additionally, small businesses employ an estimated 61% and constitute approximately 97% of formal business establishments in the country (Damane, 2008:12; Abor & Quartey, 2010:216; Nieman & Nieuwenhuizen, 2010:3; Ngwenya, 2012:17). The South African economy, according to Ponelis and Britz (2011:2), boasts about 2 million Small, Medium, Micro Enterprises (SMMEs), which employ half of the working population (Gumede, 2004; Mutezo, 2005; Rogerson, 2008). The correct estimate of the number of SMMEs in South Africa is however uncertain as various sources offered differing figures over the years. The 2 million figure by Ponelis and Britz (2011), however, surpasses the Department of Trade and Industry's (DTI) (2012) figure, which suggests that there are more than 800,000 SMEs in South Africa. Small businesses, and by extension ECFs, are now highly valued as a more important source of innovation than their bigger counterparts by virtue of their being small and nimble (Radnic, Ivanis & Milojica, 2010).

3.3.1 DEFINING SMALL BUSINESSES

According to scholars (Zimmerer & Scarborough, 2008; Mahembe, 2011), small businesses constitute the largest number of businesses in almost all countries, and they are the highest contributors to economic growth and development. Despite the importance of small businesses in the economy there is not a universally accepted definition of the term 'small business' (Dzansi, 2004; Moore, Petty, Palich & Longenecker, 2010; Nieman & Nieuwenhuizen, 2010; Stokes & Wilson, 2010; Venter et al., 2012). The lack of a universal definition can be attributed to a number of factors including, but not limited to, the fact that different countries employ different measures of small business subcategories and also the fact that definitions of small business vary from one industry to another even within same national boundaries (National Small Business Amendment Act, No 26 of 2003; Leopoulos, 2006).

The definition of small businesses has attracted a lot of debate in recent years with scholars such as Lucky and Olusegun (2012:520) maintaining that small businesses are firms or businesses arising as a result of entrepreneurial activities of individuals. In most countries, observe du Toit et al. (2012:52), it is an accepted practice to make use of quantitative criteria when attempting to define a small business enterprise. This quantitative criteria according to du Toit (2012:52), also discussed in detail in section 3.3.2 of the current study, include the following:

- Number of employees.
- Sales volume.
- Value of assets.
- Market share.

Moore et al. (2010:55) present an overview of what constitutes small businesses. They explain that small businesses are entities that in most cases employ fewer than 100 persons. In their view, small businesses localize their operations except marketing, which may have wider coverage. Most business naturally start small due to resource constraints or strategic reasons (Timmons & Spinelli, 2007; Nieman & Nieuwenhuizen, 2010; Dandago & Usman, 2011; Venter et al., 2012).

Small business definitions commonly entail quantitative and qualitative dimensions (Stokes & Wilson, 2010:5; University of Strathclyde Library, 2012:7). The qualitative issues addressed by these sources include market share, independence in terms of ownership and operations and business form. Quantitative definitions are based on head count, turnover, and balance sheet value (Stokes & Wilson, 2010:4). The quantitative definition is discussed briefly in the next section (3.3.2) on classification of small businesses. The lack of a common definition of small businesses has, therefor, given rise to various definitions in literature. Table 3.2 below gives an indication of a few examples of definitions used by scholars to define the concept.

Table 3-2:Some common definitions of small businesses

Definition	Author(s)	Interpretation
A small business is any entity, whether or not incorporated or registered under any law, which consists mainly of persons carrying on small business concerns in any economic sector, or which has been established for the purpose of promoting the interest of or representing small business concerns and includes any federation consisting wholly or partly of such association and also any branch of such organisation.	The National Small Business Act (Act No. 102 of 1996)	This definition recognizes the fact that some, small, businesses operate in the private sector as informal traders. This definition also extends to ECFs as most contractors operate in the industry without registration and the necessary insurances such as Workman's Compensation or Contractor's All Risk Insurance.
An SME is an entity that is independently owned and operated and is not dominant in its field of operation.	Small Business Administration (2004)	This definition acknowledges the involvement of small business despite the fact that small businesses are not considered a dominant force in their industries.
A small business is a firm with less than 500 employees	OECD (2006:5)	This definition of OECD takes a more quantitative view in defining small businesses. The South African threshold is, however, 200 as defined by the NSBA
A small business is one that is independently owned, operated and financed, has one or a few people who manage it without a formalized structure, has a relatively small share of the marketplace or relatively little impact on its industry and does not form part of a large enterprise.	Nieman (2006:7)	The definition by Nieman (2006), while taking a quantitative view, acknowledges small businesses' role in the market place despite having little impact.
A small business is a business that is small compared to a large company in an industry, is geographically localized and is financed by a few individuals and has a small management team.	Moore, Petty, Polich and Longenecker (2010:14)	This definition argues that a small business is more geographically concentrated as a result of a lack of finances and its management structure.

The definitions of small businesses in Table 3.2 above share many commonalities: they are managed by owners; they control a small share of the market and lack a formalized bureaucratic structure (a qualitative definition). The definitions of small businesses also differ in terms of some parameters, such as revenue turnover, asset base and total number of employees (a quantitative definition). These differential parameters are discussed in detail under section 3.3.2 below. Holt (2008:131) seems to acknowledge such differences by indicating that such parameters will differ across industries and nations. It would appear that the differences are also not only on definitions but also the fact that different researchers use different terminologies to describe small businesses. Small business can be referred to as small to medium enterprises (SMEs), small medium and micro enterprises (SMMEs), small ventures and small firms (Kongolo, 2010:22; Katz & Green, 2014:567). In the context of this study, the terms small business, small firms, SMEs and SMMEs are applied interchangeably to refer to the same form of business. **For this study, emerging construction firms (ECFs) refers to small businesses involved in construction-related economic activities per the various classifications of the CIDB.**

3.3.2 CLASSIFICATION OF SMALL BUSINESSES

Despite the lack of a common definition among scholars on entrepreneurship, literature (Bradford, 2010:26; Stimpson & Farquaharson, 2012:539) indicates that the classification of small businesses is based mainly on four determinants: number of employees, annual turnover, assets and the status of registration.

3.3.2.1 Number of employees

This classification is common among most definitions of small businesses. The main reason could be due to the fact that human resources are considered the most precious of all the resources a business can possess. Bradford (2010:26) confirms this view by arguing that employees are “a treasure too valuable to waste.” Various countries use different numbers, with South Africa having a threshold of 200 employees, while USA and United Kingdom specify volumes of less than 500 and 250

employees, respectively, and Botswana and Mozambique placing a ceiling of 100 employees (Kushnir, 2010:67). In the context of ECFs even South Africa's classification (200 employees) remains too high for ECFs to keep such a high volume workforce. The main reason is that ECFs rely on once-off projects that last for three to six months and as such cannot afford to carry such amounts of employees on their books permanently.

3.3.2.2 Annual turnover

Business performance can be measured by various indicators such as growth in annual turnover and, in a stable economy, an increase in annual turnover may signal an increase in the size of the organisation and vice versa (Hill, 2008:8). This measure of SMMEs is used currently in South Africa by the Construction Industry Development Board (CIDB) to grade construction firms. CIDB contractor grading is discussed in detail under section 3.7 of this chapter. The problem with this classification, in ECFs' context, is that ECFs carry out once-off projects, with some big projects, resulting in high turnovers when work is more and small projects yielding low turnovers when there is less volume of work.

3.3.2.3 Assets

Regardless of their size, most businesses own both non-current asset and current assets (Stimpson & Farquaharson, 2012:539). This is another common measure and a major problem by the CIDB in grading contractors as, in ECFs' context; most ECFs struggle to acquire non-current assets (machinery and buildings) rather than current assets (raw materials and working capital).

3.3.2.4 Status of registration

Most informal businesses across the globe are not registered and subsequently do not pay taxes. These businesses are generally accepted to dominate (in number) in the informal sector of the economy and the majority of them in South Africa are not

registered and do not contribute to the national fiscus (DTI, 2008). The construction industry, while highly regulated in South Africa, still experiences high volumes of contractors that do business with consumers without the necessary licenses in the form of NHBRC certification or CIDB grading.

3.4 SMALL BUSINESSES- A SOUTH AFRICAN PERSPECTIVE

In the South African context small, micro and medium enterprises (SMMEs) generally refer to the full spectrum of businesses other than large corporations and publicly owned enterprises. SMMEs include categories known as micro-enterprises, survivalist-enterprises, informal sector enterprises and formal small and medium-sized enterprises. It also covers all businesses in all stages of evolution, otherwise referred to as start-ups, emerging or expanding enterprises. The term also characterizes family-owned, black-owned, women-owned or co-operatively owned enterprises (DTI, 2005). SMMEs are regarded in South Africa as valued contributors to its mainstream economy (Blaauw, 2006).

For public entities to effectively integrate SMMEs into the construction industry at large requires an understanding of the environment within which they exist, their contracting capabilities, their risk tolerance, their responsiveness, their productivity and the problems that impede their growth, performance and sustainability. The South African construction industry needs to look at creating an enabling environment which will maximize SMMEs' (and by extension ECFs) benefits and minimize the identified weaknesses (Gasa, 2012:41). Small businesses constitute 95% to 97% of all South Africa's enterprises (Damane, 2008:13; Abor & Quartey, 2010:215; Nieman & Nieuwenhuizen, 2010:3; Venter et al., 2012:19). In South Africa, as in the European Union (EU), small businesses are referred to as small, micro and medium enterprises (The National Small Business Act 102 of 1996). The National Small Business Act (NSBA) of 1996 as amended in 2003 and 2004 provides, not only the most widely applied definitional framework in the South African context, but also a detailed classification based on the sector.

Although the development of SMMEs is one of the South African government's priority programs, the 2010 Global Entrepreneurship Monitor (GEM) survey confirmed below-average entrepreneurial and business activity in South Africa (Herrington, Kew & Kew, 2010). In ECFs' context, this renewed emphasis on entrepreneurship and business development, coupled with South Africa's poor performance in this regard, confirms the need within both the public and private sectors for more information about the drivers of and the barriers to entrepreneurship and business development. In South Africa small businesses are firms with a maximum of 200 employees (NSBA 102 of 1996). This classification is further extended by scholars such as Falkena (2001) and van Aardt et al. (2010:4) by including other categories that distinguish small businesses. van Aardt et al. (2010:4) provide the following classifications:

3.4.1 EXTENDED CLASSIFICATION OF SMMES

While guidelines provided in the NSBA 102 of 1996 ascertain that SMMEs can be defined in both qualitative and quantitative terms. van Aardt et al. (2010:4) extended the classification offered by NSBA by including other categories that distinguish small businesses. The next section discusses these classifications.

3.4.1.1 Basic survivalist

A survivalist is a self-employed individual who operates his or her business enterprise either alone or with between one and five assistants (Mahadea & Youngleson, 2014:51). For this type of business, the person operates as an entrepreneur to survive until he obtains a formal-sector job or entrepreneurial opportunity. In survivalist enterprises, the income generated is less than the minimum income standard or poverty line, there are no paid employees, and asset value is minimal. Survivalists usually have limited education, training, technical skills, resources, market growth prospects and an annual turnover of around R12000 (Ntsika, 2001). This category, in ECFs' terms, can be referred to ECFs in grade 1 of the CIDB grading system.

3.4.1.2 Pre-entrepreneur

This person is involved in welfare-based entrepreneurship where profit maximization is less important than the collective. This category includes vendors and hawkers and, in ECFs' context, will be regarded also as a contractor with a CIDB grading of 1CE - 2CE. CIDB contractor grading is discussed in detail under section 3.7 of this chapter.

3.4.1.3 Subsistence entrepreneur

Also called an opportunistic entrepreneur by other scholars, this person often starts a business with a mix of rounded education and technical knowledge and his orientation is not to stay stagnant, but to proactively seize profitable opportunities to grow the firm and adapt to the changing environment (Mahadea & Youngleson, 2014:55). This person is involved in independent income-generating activities operating as a small-scale vendor. This type of an entrepreneur will be an equivalent to a 3CE CIDB graded business.

3.4.1.4 Micro-entrepreneur

Micro-enterprises have a turnover less than the VAT registration limit (i.e., R150 000 per year) and are not usually formally registered for tax or accounting purposes. This person employs fewer than 10 people except in the mining, electricity, manufacturing, and construction sectors. This type of an entrepreneur will be an equivalent of a 4CE CIDB graded business.

3.4.1.5 Small-scale entrepreneur

In small enterprises, a secondary coordinating managerial structure is in place, providing some coordination and therefore exhibiting more complex business practices than very small enterprises. This person is a formal-sector entrepreneur with 11 to 49 employees. In ECFs' terms, this is a typical contractor who is graded at either 5CE or 6CE in terms of the grading system of the CIDB. Falkena (2001:29) extends the classification provided by the NSBA and van Aardt et al. (2010), by also including

both the annual turnovers and assets in the classification. Table 3.3 below indicates an extended classification of SMMEs by Falkena (2001), which includes both the annual turnovers and gross assets.

Table 3-3: An extended classification of SMMEs

Enterprise size	Number of employees	Annual turnover	Gross assets excluding fixed property
Medium	Fewer than 100 to 200 depending on industry	Less than R4 million to R50 million depending on industry	Less than R2 million to R18 million depending on industry
Small	Fewer than 50	Less than R2 million to R25 million depending on industry	Less than R2 million to R4.5 million depending on industry
Very small	Fewer than 10 to 20 depending on industry	Less than R200 000 to R50 000 depending on industry	Less than R150 000 to R500 000 depending on industry
Micro	Fewer than 5	Less than R150 000	Less than R100 000

Source: Falkena (2001:29)

A comparison of Falkena's (2001) extended classification with the CIDB's contractor grading system indicates a significant difference in terms of available capital and/or assets. The classification is, however, similar in the sense that ECFs classified as "micro" in terms of Falkena will be graded 1CE by the CIDB, as both specify a turnover of less than R150 000. The 2CE CIDB-graded contractor corresponds with Falkena's "very small' classification since both specify ECFs' turnover of less than R200 000. Both classifications categorize 4CE and 5CE as small enterprises with a turnover of less than R2 million. For a better comparison of the two classifications see Table 3.4 under Section 3.7 of this chapter.

3.5 THE ROLE OF ENTREPRENEURSHIP AND SMMES

Entrepreneurship has been recognized as an important aspect and function of organisations and economies. It contributes in immeasurable ways toward creating new jobs, wealth creation, poverty reduction and income generation for both governments and individuals. Schumpeter (1934) argued that entrepreneurship is very significant to the growth and development of economies. The South African Government had, for instance since 1994, been injecting funds into different skills

acquisition programs and small businesses, and providing support for the informal sector through provision of credit facilities for boisterous economic activities at the rural community level.

The development of entrepreneurship will go a long way in providing the necessary impetus for economic growth and development. It will be crucial in boosting productivity, increasing competition and innovation, creating employment and prosperity and revitalizing economies. According to various authors (Ritche & Lam, 2006; Alsaaty, 2011; Venter et al., 2012), apart from facilitating national economic growth, entrepreneurship and/or small businesses offer the following advantages:

- **Job creation:** Small businesses in South Africa employ 60% of the nation's labor force, hence the role and importance of these businesses is to a large extent linked to their capacity to create jobs (Radnic, Ivanis, & Milojica, 2010; Alsaaty, 2011; Chimucheka, 2013). According to Statistics South Africa (2013) South Africa's unemployment level, especially among youths in the 15-24 years' age category, is estimated at around 51%. This very key role played by small businesses is not recognized by many in the country, as some political parties in parliament have often argued that such ECFs' jobs are not permanent and as a result should not be counted in the number of jobs created.

  Poverty alleviation and wealth creation: Scholars have often defined entrepreneurship as the creation of new ventures (du Toit, Erasmus & Strydom, 2009:49; Venter et al., 2012:5). Indeed, the creation of new ventures will tend to generate more jobs and more people earning a salary. Literature reveals that entrepreneurial ventures provide an enhanced quality of life to employees, customers and the community. The creation of more ECFs can only give rise to more people being employed and by extension overcoming the poverty levels South Africa is currently experiencing.

- **Innovation:** Innovation is one of the key characteristics of entrepreneurship. Literature points out that being very small and nimble, small businesses are able to undertake more innovative activities than their large counterparts

(Laforet & Tann, 2006:368). Innovation is regarded as a key business strategy to enter new markets, increase the existing markets share and to create a competitive advantage. This innovation agility of small businesses ensures economic growth and development as the presentation of new quality products can even be marketed in other foreign markets. Since ECFs cannot compete with their bigger counterparts given their financial constraints, their ability to create new products, processes or marketing and advance these quickly in the market for the consumers remains key for the consumers.

Despite the all-important contribution by SMMEs in the economy literature points out that most small businesses do not survive beyond their maiden five years (Bank of England, 2001; Berger & Undell, 2001; Reynolds & Lancaster, 2006; Franco & Haase, 2009; Roberts, 2011). The key question is what are the specific challenges faced by ECFs in their day-to-day operations that threaten their long-term survival? These challenges are discussed in the next section.

3.6 CHALLENGES FACING SMMES IN SOUTH AFRICA

The South African government has, since 2000, identified the SMMEs' sector as the means to achieve accelerated economic growth. However, this objective was not achieved, partly due to the high failure rate of 80% of enterprises and by extension ECFs, in the SMMEs' sector (Watson, 2004:17; van Niekerk, 2005:65). ECFs often flourish due to their adaptability and agility, such as their close proximity to their customers, their openness towards new ways of working and their risk-taking approach, but many ECFs are susceptible to major external shocks (Berry, von Blottnitz, Cassim, Kesper, Rajaratnam & van Seventer, 2002:2; Laforet & Tann, 2009:364). Although SMEs experience difficulties in absorbing and coping with these obstacles, they need to develop the ability to deal with the ever-increasing challenges (Leopoulos, 2006:225). According to Naicker (2006:3) problems experienced by SMEs can be categorized based on economic problems, enterprise problems and industry related problems.

3.6.1 ECONOMIC BASED PROBLEMS

SMEs' success is tied in with the local economic conditions, as the SMEs' sectors market growth is usually at the same rate as the macro economy as whole. If there is an economic downturn, therefore, SMEs will usually also experience difficulty (Berry et al., 2002:4). ECFs are faced with the following economic issues on a daily basis:

- **Lack of access to and high cost of finance**: Fatoki and Garwe (2010:731) provide evidence that lack of financial resources is the second-most reported contributor to failure of SMMEs in South Africa, after education and training. Most ECFs are expected to provide sureties (in the form of performance and working capital guarantees) and insurances (contractors all risk, plant insurances and workman compensation) which financial houses demand collaterals they don't have while charging high interest rates. Most ECFs lack equity to finance their enterprises and invariably resort to borrowing at high interest rates. According to Rogerson (2001:117) and Skinner (2005:3), the lack of credit is a major constraint experienced by emerging South African entrepreneurs who are dependent on loans and personal savings from relatives and friends as the source of their start-up capital.

- **Lack of funding models for SMMEs**: South African bankers are less inclined to finance SMMEs due to their perceived high level of risk and weak expected return (St-Pierre & Bahri, 2006:547). The lack of sound funding models is further complicated by ECFs' inability to draw up a business plan and general communications issues (Berry et al., 2002:7).

3.6.2 ENTERPRISE BASED PROBLEMS

Internal factors such as human resource problems encompassing poor staff planning, multi-functional management, high employee turnover rate, inadequate trained employees, low productivity and difficulties in recruiting quality staff are impediment to SMEs' success (Rogerson, 2004:765; Watt, 2007:45). The following challenges (internal factors) are important towards the success of ECFs:

- **Lack of entrepreneurial skill**: Despite being regarded as the bedrock of an economy and key drivers of economic growth; small businesses suffer skills deficiencies that often endanger their sustainability. ECFs' lack of managerial skills (technical, financial and marketing) is an important cause of enterprise failure, complicated by lack of experience and lack of organisational culture acting as an impediment to the establishment of ECFs (Watson, 2004; Naicker, 2006; Nieman & Nieuwenhuizen, 2010; Olawale & Garwe, 2010; Dandago & Usman, 2011).

A case in point in the construction industry is the situation in the Limpopo Province of South Africa in which emerging contractors have failed to compete adequately with well-established contractors in the construction industry due to shortage of technical skills, capital, and lack of access to markets. This study, conducted by Tshivhase and Worku (2013:775) among 104 emerging contractors operating in the Province of Limpopo to identify and quantify key obstacles to growth and development in emerging contractors, showed that the viability of emerging contractors in this particular province was significantly influenced by three factors: lack of entrepreneurial skills; lack of capital and lack of transparency in the award of construction tenders.

- **Lack of education and training**: Studies on the level of education and entrepreneurship have often indicated a positive relationship between these two variables (Rogerson, 2001:118; Venter et al., 2012:35). Lack of education is seen as one of the most significant barriers to entrepreneurial activity (Nieman & Nieuwenhuizen, 2009:31). The merit of the findings is based on the argument that entrepreneurs with a greater level of education and training are more able to adapt their business to the ever changing environment. Rogerson (2008:71) maintains that finance, skills and business training and less rigid regulations are the key elements to promote entrepreneurship, to enhance the enterprise environment, and to improve competitiveness and capacity in the SMEs' environment.

Most ECFs do not even have the necessary knowledge and training to price bid documents, which on award become contractual documents, and subsequently cannot access funding due to poorly priced bills of quantity. Fatoki and Odeyemi (2010:128) augment this picture by pointing out that in South Africa, SMMEs access only 3.8% of available business capital (R29 billion), citing low levels of education and training, managerial capacity in accessing debt financing, lack of collateral and inadequate financial statements.

- **Lack of awareness of support programs:** Various government initiatives and institutions, such as the Small Enterprise Development Agency (Seda), Umsobomvu Youth Fund, the Industrial Development Corporation (IDC) and National Youth Development Agency (NYDA), have been established to assist ECFs with their various needs but most are unaware of the support such organisations offer. DTI (2008) commented that the lack of awareness and ultimately financial support contributed to the high small business failure rate in South Africa. This view by DTI was initially echoed by Maas and Herrington (2006) when they argued that most SMMEs in South Africa are not aware of government efforts that are in place to assist them. ECFs in South Africa would rather resort to commercial banks (FNB, ABSA, Nedbank, STD, Bidvest, etc.) to seek financial support at very high costs and sometimes support needed is not even financial and often necessary.

- **Difficulty in networking:** The inability of small businesses to effectively network with relevant individuals or businesses in order to reduce costs of accessing information, technology and markets inhibits the performance of small firms (Fatoki & Odeyemi, 2010:131). This study is premised on the argument that when ECFs rely on social capital networks that are value free and are innovative they will be more competitive and enjoy a better firm performance. This continued inability of ECFs in South Africa has, however, become their major barrier toward long-term survival. It is the intention of the current study to break this barrier and encourage ECFs to rely on social networks and be innovative.

3.6.3 INDUSTRY RELATED PROBLEMS

According to various scholars (Huang & Brown, 1999:75; Naicker, 2006:45; Watt, 2007:54), market related factors that exert the most negative influence on enterprise success are increased competition, limited market size, low demand, inefficient marketing, poor competitor understanding, poor location and market understanding and the inability to identify the target market. Industry forces, argues David (2009:106), are more important than internal factors in a firm achieving a competitive advantage. These forces affect ECFs in various ways and the following reflect but just a few:

- **Structural problems**: South African SMEs, contrary to SMEs in other developing countries, do not complement larger organisations with specialized products or services, but they compete with larger enterprises in the same product markets (Rogerson, 2004:778). This problem, in ECFs' context, is further complicated by the State's ignorance when bigger contractors (contractors with a CIDB grading of 8CE or higher) are allowed to bid for contracts that should have been reserved for smaller contractors (contractors with a CIDB grading of 7CE or lower). Categorization of contractors by the CIDB is discussed in detail later in this chapter.

- **Unfair competitive bidding process**: Watt (2007:13) maintains that the lack of financial support and uneven competition amongst SMEs is a major impediment to their growth. South African ECFs are expected to compete with their counterparts (established entities) during the normal bidding process. These ECFs are expected (as is the case in Mangaung Metropolitan Municipality) to buy bid documents to the amount of R6000.00; provide a list of plants owned to qualify for functionality points, and to submit profiles of competent personnel in their full time employ.

- **Unfavourable regulatory framework**: The regulatory framework governing SMMEs is designed for large business and imposes additional hassles to small businesses (Financial Gazette, 2011:5). This framework consists of multiple complex bureaucratic constraints such as high taxes, lengthy process of registration and centralization of registering processes and high borrowing rates (Financial Gazette, 2011:5). An authority (CIDB) that is supposed to grade

contractors is centralized in Pretoria, Gauteng province of South Africa, far detached from provincial contractors. This body (CIDB) has established provincial offices which can only receive applications and at most can only register entry level contractors (1CE grading). This always creates a problem for ECFs as these provincial CIDB centres often provide letters to ECFs that claim to ensure successful registration within 21 working days but ultimately result in more than 90 days with ECFs failing to get answers from unhelpful provincial employees. This then leads us to a discussion on the categorization of contractors in South Africa.

3.7 CATEGORISATION OF FIRMS IN SOUTH AFRICA

The South African democratic government has been achieving substantial expansion in infrastructure investments in both public and private sectors, with the public sector accounting for about 65% to 70% of construction works (CIDB, 2007). The vibrant construction industry in South Africa is driven by both the public and private infrastructure projects (Barry & Sebone, 2009:2). Government infrastructure, however, has encouraged restructuring and downsizing of some established contractors and SMMEs that have come to participate progressively in the South African economy (Diale, 2009:18). Despite Diale's (2009) observation, the role of government in developing and growing SMEs in the construction sector remains important, contend Adendorff, Appels and Botha (2011), because it has the capacity to produce a high-quality infrastructure. The construction sector in South Africa has experienced tremendous growth, especially before and during the 2010 FIFA World Cup. According to the 'State of the South African Construction Industry Report' published in 2012, the value of the construction industry in South Africa was R34 billion which translated into a contribution of just over 3% to the GDP (Industry Insight, 2012). The construction sector (contributing 9% of the total formal and informal employment in South Africa) is an important player in job creation, not only in this sector but other sectors such as manufacturing, mining, transportation, real estates and business services (CIDB, 2015:2). The construction industry was also found to be a major contributor to employment as this industry employed just under a million people in 2011(Industry Insight, 2012).

Perhaps a better characterization of the South African construction industry is offered by Ofori (2011), who makes the following interesting suggestions when asked to assess the character of the South African construction industry:

- That greater solidarity among businesses and their leaders to foster common interests is imperative. Perhaps this solidarity can be through social networks in ECFs' context.
- That a greater understanding of the industry by construction SMMEs is imperative. This understanding of ECFs' terms could mean collaborative working and reliance on one another in order to perform better.
- That a better awareness of the nature and needs of SMMEs in construction is necessary. This understanding in ECFs' terms will mean that ECFs will no longer be treated like their bigger counterparts by government, and.
- That there be a development of more appropriate and better-focused policies and programs for SMMEs.

Participation of SMMEs has, however, resulted in the regulation of the construction industry, a move that has frustrated the majority of SMMEs due to stringent measures and requirements by the CIDB. The next section delineates these stringent measures and requirements.

3.7.1 OVERVIEW OF THE CONSTRUCTION INDUSTRY IN THE FREE STATE

The national unemployment rate according to Statistics South Africa (2014) was 24.3% in the last quarter of 2014 and the rate of unemployment in Free State, study's area of interest, was the highest at 32.2%, compared to other provinces. The rising unemployment rate leads to other serious problems, such as crime and poverty and as such, the current study contends that ECFs are the only means of curbing an increase in unemployment. Employment in the construction sector in Free State in 2013 stood at 54 000 employees, a figure which was the second lowest as compared to other provinces, with Gauteng creating the highest employment (366,000) in the construction sector (Statistics South Africa, 2014).

Similarly, in a study conducted by the Global Economic Monitor (GEM), SMEs in the Free State were found to be performing poorly (Herrington et al., 2010). GEM's analysis compared provincial data to rate total early-stage entrepreneurial activity (TEA), in which a higher score represents better performance (Herrington et al., 2010). The overall TEA of Free State was 9, compared with 30 in Gauteng, 17 in KwaZulu-Natal, 15 in Western Cape, and 10 in Limpopo (Herrington et al., 2010:25). These statistics are a cause of concern for the economy of the Free State and the continued survival of ECFs in the province, hence a need to investigate the impact of social capital on innovating ECFs and its concomitant impact on ECFs' competitiveness and firm performance.

3.7.2 THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

The Construction Industry Development Board (CIDB) has, in terms of its legislative mandate, CIDB Act 38 of 2000, established a Register of Contractors and a Register of Projects (CIDB, 2010). The Register of Contractors is designed to manage risk in the tendering process, reduce the administrative burden associated with the award of contracts and reduce tendering costs to both clients and contractors, whilst the Register of Projects gathers information on the nature, value and distribution of projects (CIDB, 2015). ECFs must register with the CIDB because the CIDB Act 38 of 2000 stipulates that no public sector client may award construction contracts to a contractor who is not registered.

The Register of Contractors grades and categorizes contractors according to their capability to carry out construction projects. There are nine different grading (Table 3.4) levels to which contractors can be registered. A grade determines the maximum Rand value of a project as well as the type of construction works a contractor is competent to perform (CIDB, 2010). The classification presented in Table 3.4 below is similar to the table of classification provided by Falkena (2001), with the available capital (or available assets in Falkena's terms) being the main distinguishing factor.

Table 3-4: CIDB contractor financial capability

Designation	Upper limit of tender value range	Best annual turnover	Largest contract	Available capital
1	R 200 000	-	-	-
2	R 650 000	-	R 130 000	-
3	R 2 000 000	R 1 000 000	R 450 000	R 100 000
4	R 4 000 000	R 2 000 000	R 900 000	R 200 000
5	R 6 500 000	R 3 250 000	R 1 500 000	R 650 000
6	R 13 000 000	R 6 500 000	R 3 000 000	R 1 300 000
7	R 40 000 000	R 20 000 000	R 9 000 000	R 4 000 000
8	R 130 000 000	R 65 000 000	R 30 000 000	R 13 000 000
9	No Limit	R 200 000 000	R 90 000 000	R 40 000 000

Source: CIDB (2013:16)

The grades in Table 3.4 above clearly indicate that for ECFs to fully emerge will require much innovative effort in executing more projects that can improve not only the working capital but also the asset value.

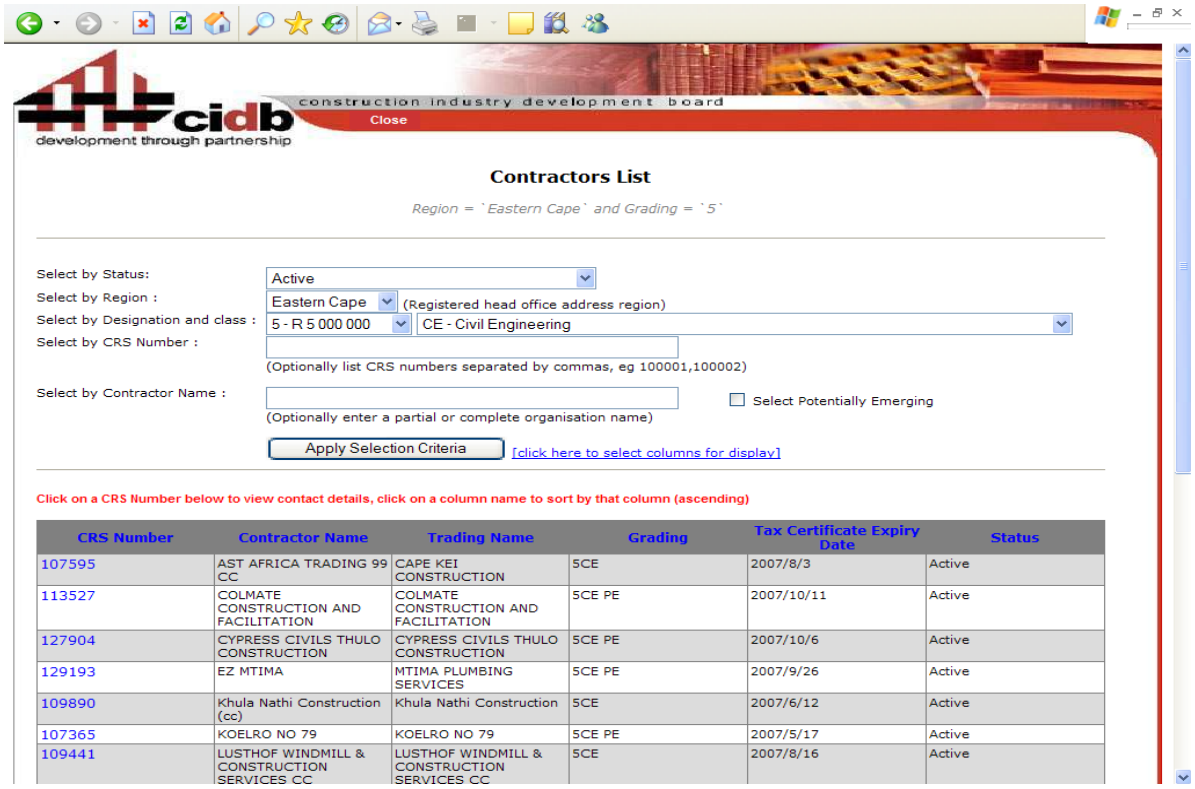
3.7.3 HOW THE CIDB DETERMINES THE CONTRACTOR GRADING

According to the CIDB (2010) the following are the key determinants for the contractor grading designation:

i. **Contractor's financial capability*:*** This relates to the contractor's financial history (turnover) and the amount of working capital a contractor can muster to sustain a contract. Contractor's available capital is determined from the liquid cash resources available to the contractor, loans that may be leveraged and any financial sponsorship. Depending on the contractor grading designation applied for, financial capability will be determined from:
    - The best turnover from the two financial years immediately preceding the application.
    - The contractor's ability to satisfy all the criteria relating to financial capability.
    - The available capital that a contractor is able to mobilize.

ii. **Contractor's work capability**: This is determined by the largest contract a contractor has undertaken and completed in the contractor's class of construction works (completed during the five years immediately preceding the application).

Once the contractor has filed his application and met all the necessary stipulated requirements the application is then forwarded to the CIDB head office in Pretoria by the CIDB Provincial centre and the contractor is advised to wait for a period of 21 working days for finalization of the application. Once the contractor's application has been approved the CIDB loads the contractor's name on its database (see *Figure 3.1*) and this can be accessed by anyone, including potential clients, anytime.



CRS Number	Contractor Name	Trading Name	Grading	Tax Certificate Expiry Date	Status
107595	AST AFRICA TRADING 99 CC	CAPE KEI CONSTRUCTION	5CE	2007/8/3	Active
113527	COLMATE CONSTRUCTION AND FACILITATION	COLMATE CONSTRUCTION AND FACILITATION	5CE PE	2007/10/11	Active
127904	CYPRESS CIVILS THULO CONSTRUCTION	CYPRESS CIVILS THULO CONSTRUCTION	5CE PE	2007/10/6	Active
129193	EZ MTIMA	MTIMA PLUMBING SERVICES	5CE PE	2007/9/26	Active
109890	Khula Nathi Construction (cc)	Khula Nathi Construction	5CE	2007/6/12	Active
107365	KOELRO NO 79	KOELRO NO 79	5CE PE	2007/5/17	Active
109441	LUSTHOF WINDMILL & CONSTRUCTION SERVICES CC	LUSTHOF WINDMILL & CONSTRUCTION SERVICES CC	5CE	2007/8/16	Active

Figure 3-1: CIDB database of registered contractors

Source: CIDB (2007)

The register also enables clients and potential clients to determine if the contractor is still in good standing with the South African Revenue Services (SARS) by indicating

the actual expiry date of the contractor's tax clearance certificate. The contractor's grading is designated as follows:

- 5CE PE: Where a 5 designates level 5 grading, CE designates Civil Engineering and PE designates Potentially Emerging.
- 5GB PE: Where a 5 designates level 5 grading, GB designates General Building and PE designates Potentially Emerging.
- 5ME PE: Where a 5 designate level 5 grading, ME designates Mechanical Engineering and PE designates Potentially Emerging.

The Act (CIDB Act 38 of 2000) defines an emerging enterprise as "an enterprise which is owned, managed and controlled by previously disadvantaged persons and which is overcoming business impediments arising from the legacy of apartheid." The CIDB registers those contractors owned, managed and controlled by previously disadvantaged persons and who apply for registration as potentially emerging enterprises. **For the purpose of this study emerging construction firms (ECFs) that are graded up to level 7 of the CIDB grading system in any work category are considered to be contractors irrespective of their historical origin and or past. Subsequently, entrepreneurship as a construct in this study will be measured by number of years ECFs have been in operation (ECF's age), annual turnover, total assets owned and total number of employees employed on a permanent basis.** The CIDB's database is able to categorize contractors using various classifications such as national, provincial (see Table 3.5 below) and according to female ownership.

Table 3-5: CIDB database of registered contractors in the Free State

Designation	CE	EB	EP	GB	ME	SW	Total
1	1125	67	306	2590	343	1108	5539
2	78	16	5	131	20	53	303
3	31	0	3	31	1	17	83
4	58	7	10	37	7	3	122
5	31	4	6	38	5	5	89
6	46	3	5	37	2	1	94
7	17	1	3	16	0	0	37
8	7	0	1	5	1	0	14
9	3	0	0	1	0	2	6
Total	1396	98	339	2886	379	1189	6287

Gradings of interest for current study

Source: CIDB (2015)

Table 3.5 above is a reflection of the population of interest for the researcher and indicates a total of 6287 contractors active on the CIDB register. The intention of the current study is to draw a sample of 800 contractors from grades 1-7 who are defined as ECFs in this study.

3.8 APPLICATION OF SOCIAL NETWORKS IN ENTREPRENEURSHIP

Social networks theory suggests that when actors engage in networks, irrespective of the nature of such engagement (whether internal or external), they stand to derive an embedded value. The next section attempts to indicate how this value, commonly referred to as social capital, plays out in real business and/or in entrepreneurial practice.

3.8.1 SOCIAL CAPITAL NETWORKS AND THE RESOURCE-BASED VIEW

The resource-based view (RBV) is a simple economic tool for determining a firm's resource position to attain a competitive advantage. A competitive advantage is anything that a firm does especially well when compared to rival firms (David, 2009:39) and that gives the organisation an edge over others (Ehlers & Lazenby, 2011:3). The competitive edge of a firm is ultimately defined by the bundle of unique resources (skills, knowledge and capabilities) it contains (Ehlers & Lazenby, 2011:4). It is thus not surprising that some scholars maintain that firms that are able to generate innovations may be more successful in improving performance and maintaining a competitive advantage (Lipit, 2006; Artz et al., 2010; Rosenbush, Brinckmann & Bausch, 2011; Atalay, Anafarta, & Sarvan, 2013). Various scholars argue that the resource-based perspective emerged to counter the excessive determinism of the Porterian view of competition, and that it emphasizes the importance of key resources in achieving a competitive advantage (David, 2009; Ehlers & Lazenby, 2011). A company's achievement of a sustainable competitive advantage however depends not only on resources and capabilities as its competitive architecture, but also on the degree of fit between its resources and the set of critical strategic industrial factors.

According to Baraldi, Brennan, Harrison, Tunisini and Zolkiewski (2007:879), the resource–based view of competitive advantage operates on the assumption that firms are heterogeneous in terms of their control of important strategic resources and that resources are not perfectly mobile between firms. This, they argue, presents a relaxation of the assumption that firms do not differ in their control of strategic resources. A resource is "anything which could be thought of as a strength or weakness of a given firm and include[s] tangible and intangible assets used by an organisation to develop a product or service" (Ehlers & Lazenby, 2011:115). In ECFs' context it comprises all assets, capabilities, organisational processes, firm attributes, information, knowledge acquisition and social networks in the industry controlled by ECFs that enable ECFs to carry out strategies that advance their efficiency and effectiveness. This competitive advantage is sustained when the value-creating strategy is not being simultaneously implemented and cannot be duplicated by any current or potential competitors.

Ehlers and Lazenby (2011:118) state that to be a potential source of sustained competitive advantage, a resource must have the following four attributes:

- **It must be valuable:** A resource is valuable if it helps the organisation to exploit external opportunities or if it can be used to cope with and neutralize negative external threats. ECFs, by virtue of collaborating and through joint ventures with other organisations with increased capacity, are able to compete and gain increased knowledge.

- **It must be rare:** A resource is rare if it is in short supply and no other organisation possesses it. The ability to network and stay connected is not very easy for ECFs and as such those ECFs that have the potential to network and possess this rare skill are in a better position than those that cannot network.

- **It must be imperfectly imitable:** A resource is inimitable if it is hard to imitate. Most firms compete by virtue of having an ability to duplicate what others do. ECFs can take advantage of this, as networking relies solely on the ability of an individual firm to collaborate with others and be trusted by other network members.

- **It must be a superior resource:** A resource is superior if it is better than those of competitors and it fulfils a customer's needs better. ECFs can only enjoy superior resources if they collaborate with other network members that already enjoy such superior resources.

ECFs do not, most of the time, have access to other economic capital such as money and other physical assets but since social capital network is cost-free this could be the only resource ECFs can exploit. The resource-based view offers ECFs an opportunity to exploit resources (social networks) that are at their disposal to maximum capacity. In South Africa such ECFs will not even have access to credit lines and this can only mean their demise, but relying on what is already available (social networks) can assist ECFs.

3.8.2 SOCIAL CAPITAL NETWORKS AND THE PERFORMANCE OF ECFS

Various studies have been conducted to examine the link between social capital and the business performance of SMMEs in general and small construction firms, in particular (Burt, 1992; Rooks et al., 2009). Burt (1992:18) made one of the greatest contributions to structural sociology, revealing the link between firm performance and social capital. According to Burt's (1992) theory of structural autonomy, the profitability of businesses increases in particular thanks to the diversification of their customer and supplier bases. According to Burt (1992:19), pure structuralism enables actors to increase their network capacity and consequently be introduced to new customers they would not necessarily have met. With an increase in customer base and new suppliers the business is able to increase its capacity and consequently its firm performance.

It would appear, though, that "entrepreneurial activity is embedded in network relationships that direct resource flows to entrepreneurs who are somehow better connected". Thus, a firm's entrepreneurial orientation will be determined by its attempts at innovativeness, risk taking, and pro-activeness (Covin & Lumpkin, 2011: 855; Miller, 2011:874). This aspect is closely related to the bridging (exclusive) forms of social capital. For example, in a study by Rooks et al. (2009:9) that examined the relationships between the characteristics of networks of small scale entrepreneurs and their innovative performance in Uganda, it was found that networks represent social capital that can contribute to economic success and innovative performance. Rooks et al. (2009:9) also highlighted that networks can also act as obstacles to the innovative performance of firms through their constraining nature. In particular, exclusive social networks which involve limited relationships across ECFs increase the risks and challenges associated with the construction industry (Ncwadi, 2005:1625). Similarly, results of a study which assessed the functions of social capital within Ghanaian organisations suggested that three determinate variables of social capital- reciprocity, trust and institutional ties- have the most significant positive relationship with organisational performance (Ofori & Sackey, 2010:71).

A study conducted by Stam and Elfring (2008) showed that the link between social networks and the degree of successful economic performance of firms depends on the age of small firms, the industry and institutional contexts in which they operate, and the specific network or performance measures used. For most emerging firms, the motivation to act accordingly is generally to get past a survival mode of operating. Unlike large established organisations with functional business networks, ECFs face the challenge of investing and reaping benefits from exclusive networks in response to rapidly shifting market conditions and client demands (Thwala & Mofokeng, 2012).

3.9 CONCLUSION

South Africa's construction industry is transforming. South Africa's economy requires a wider base of contracting entities. Much of this growth, and by direct link with Schumpeter's (1934) opening remarks on a country's economic growth, is expected to be delivered by 'emerging' contractors who are willing to collaborate and learn from others. Firms that rely on both internal and external social networks are able to successfully integrate the dimensions of social capital and perform better economically than those firms that rely exclusively on either external or internal networks (Džunić, 2010:148). Thus, the economic activity of ECFs is largely determined by socially constructed institutional structures of network relations.

With increasing pressure to operate in a highly competitive environment, the features of social capital, such as trust and social networks in particular, can improve the efficiency of ECFs by encouraging cooperation with similar or larger established firms. This chapter provided a working definition of ECFs and provided a deeper exposition of how ECFs are currently categorized in the South African construction sector. The need to collaborate in order to maximize knowledge acquisition was emphasized based on empirical evidence of the practical application of social networks on the performance of ECFs. The next chapter will elaborate further on this collaboration in terms of its relationship with innovation, competitiveness and firm performance.

CHAPTER 4: INNOVATION, COMPETITIVENESS AND FIRM PERFORMANCE

"Machines are worshipped because they are beautiful, and valued because they confer power, they are hated because they are hideous, and loathed because they impose slavery"

(Bertrand Russel, 2004:64)

4.1 INTRODUCTION

In the previous chapter, social networks and entrepreneurship were examined to unravel the underlying influence of networks on entrepreneurship. Entrepreneurship was defined as a deliberate process of creating an innovative economic organisation/network of organisations for the purpose of making profit under conditions of risk and uncertainty and remaining competitively better than others. The rationale for this chapter, therefore, is to situate this study within the mainstream literature on innovation, competitiveness and firm performance in order to understand the relationship between these constructs.

Evidence across many countries has shown that since innovation is widely accepted as a determinant of competitiveness and firm financial performance, many government policies support innovation strategies of local firms (Guan, Yam, Tang, & Lau, 2009:802; Ozorhon, Abbott, Aouad & Powell, 2010:17; Najib & Kiminami, 2011:76). However, these government interventions tend to focus mainly on science and technology policies and programs (Guan et al., 2009:802) rather than focusing on products, processes or marketing of new ideas, which positively impacts emerging construction firms (ECFs). Similarly, competitiveness has become a central preoccupation of advanced and developing countries struggling to survive in a globalized world economy (Torien, 2005:49). Yet competitiveness can hardly thrive when innovation is sub-optimally supported at both national and firm levels, as competeiveness necessitates firm growth and subsequently economic growth.

Chapter 2 illustrated how ECFs rely on a variety of social network partners to identify and exploit opportunities for firm performance. This chapter is concerned with innovation and competitiveness and their effect on the performance of ECFs. The central theme is that motivating socially networked ECFs to innovate will lead to better firm performance. The next section discusses the contested nature of innovation, followed by the typologies of innovation. This is followed by an evaluation of the classification of innovation and the framework for innovation in construction. Innovation amongst ECFs, together with barriers towards innovation amongst ECFs, is discussed in Section 4.5. The chapter concludes by discussing innovation, competitiveness and firm performance as key constructs of measurement in the study.

4.2 THE CONTESTED NATURE OF INNOVATION

Extant literature considers innovation as a major driver of competitiveness and improved firm financial performance. Rust and Koen (2011:89), for instance, opine that private equity and venture capital firms in the capital markets sector engage in social innovation by investing capital with the goal of delivering both economic and social value. Innovation is regarded as one of the key factors contributing to national economic growth, competitiveness, and higher living standards and is at the heart of the knowledge-based economy.

Various studies also emphasized that, in a highly competitive environment, a firm's ability to keep up with the pace of innovation and maintain ongoing innovation efforts is critical to its survival and growth (Dess, 1987:259; Therrien, 2003:7; de Jong & Hulsink, 2010:3; Ozorhon et al., 2010:23; Rust & Koen, 2011:89). It is this innovative ability, it can be contended, that guides firms in adapting, integrating and reconfiguring their technological capabilities, managerial capabilities and resources endowment as appropriate in a changing environment. It is therefore crucial for ECFs to rely on a variety of network partners in various roles to identify and exploit opportunities for innovation (de Jong & Hulsink, 2010:5). Despite this key importance of innovation there is still contention among scholars in terms of the acceptable definition of the concept. Since the development of the economic theory by Schumpeter at the beginning of the 20th century, the definition of innovation continues to change, as

evidenced by the various definitions in mainstream literature (OECD, 2005; Webster, 2008; Gunday, Ulusoy, Kilic & Alpkan, 2011).

4.2.1 CONCEPTUALIZING INNOVATION

As previously indicated, the lack of a common definition for innovation has resulted in scholars adopting various definitions of the concept. Innovation is a complex and multidimensional process, with varying definitions (Robinson & Stuberrud, 2012:2). For some authors, innovation may be characterized as the creation and adoption of new knowledge to improve the value of products, processes, and services; or that results in some economically useful output or outcome (Mugabe, 2011:1).

According to Gyekye, Oseifuah and Vukor-Quarshie (2012:916), Schumpeter was the first to draw attention to the significance of innovation in economic development. Schumpeter, cited in Voeten, Haan and de Groot (2009), defined innovation as "the introduction of new or improved products, production techniques and organisation structures as well as the discovery of new markets and the use of new input factors." Adding to the definitional collection on innovation, the OECD (2006) conceptualizes innovation as "the implementation of a new or significantly improved product (goods or services) or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations".

Gault in Mugabe (2011:1) defines innovation as 'the creation of value from knowledge, a driver of economic growth'. For Sexton, Barrett, Miozzo, Wharton and Leho (2001:531), innovation refers to "the effective generation and implementation of a new idea, which enhances overall organisational performance". Some of the key features of innovation identified by Mugabe (2011:1) include risk, non-linearity and learning. Sexton et al. (2001:531) identified key dimensions or features of innovation as including:

- *Idea* – ideas are taken to mean the starting point for innovation. Ideas can be administrative and technical in nature.

- *New* - not all ideas are recognized as innovations and it is accepted that newness is a key distinguishing feature. The idea only has to be new to a given firm, rather than new to the 'world'. Further, the newness aspect differentiates innovation from change. All innovation implies change, but not all change involves innovation.
- *Effective generation and implementation* – innovation requires not only the generation of an idea (or transfer of a 'new' idea from outside the company), but also its successful implementation. The implementation aspect differentiates innovation from invention.
- *Overall organisational performance* – innovation must improve organisational performance, either individually or collectively, through the supply chain. Innovations that improve some isolated aspect at the expense of overall performance are undesirable.

Common to the foregone definitions are product/service and process characteristics of innovation. Going by the OECD's (2006) definition, innovation for ECFs in this study would imply product or process innovation. In addition, marketing and organisational innovation would reflect the extent to which ECFs apply new ideas in delivering their products (construction outputs), processes and management practices. Being in the construction industry, ECFs would be seen to be innovative in their product delivery methods (marketing) when they come up with new products or new processes in their operations. ECFs could, for instance, come up with new structural designs (such as a new roofing system that can simultaneously generate electricity) or introducing new ways of undertaking their construction projects (such as the introduction of labour-intensive construction methods as opposed to machine-intensive methods).

The various definitions of innovation from literature reveal that innovation can take various forms, such as product/service innovation, process innovation, market innovation and organisational innovation. These dimensions of innovation are discussed in detail in the next section.

4.2.2 INNOVATION DIMENSIONS

While Schumpeter (1934) also described different types of innovation--new products, new methods of production, new sources of supply, the exploitation of new markets and new ways to organize business-the OECD (2006) introduces four different innovation types: product/service innovation, process innovation, marketing innovation and organisational innovation. These innovation typologies, presented by the Oslo Manual, are regarded as the primary international basis of guidelines for defining and assessing innovation activities.

4.2.2.1 Product/service innovation

A product/service innovation refers to the introduction of a good/service that is new or significantly improved regarding its characteristics or intended uses (OECD, 2006). Product/service innovation is a difficult process, driven by advanced technologies, changing customer needs, shortening product life cycles and increased global competition. It can be based on new uses or combinations of existing knowledge or technologies. For success, product/service innovation must involve strong interaction both within the firm and between the firm and its customers, and suppliers and customers must be willing and able to buy the new products or services (Valmohammadi, 2012). ECFs would typically engage in delivering products (roads, buildings, sewage systems, etc.) hence the relevance of product innovation.

4.2.2.2 Process innovation

Valmohammadi (2012) refers to process innovation as an activity that involves making beneficial changes to the process that produces products and services. Process innovation embraces quality function deployment and business process reengineering. A process innovation is the implementation of a new or significantly improved production or delivery method (OECD, 2006). This includes significant changes in techniques, equipment and software. For example, ECFs can innovate less complicated survey equipment for taking levels (surveying) with built-in software that would allow records to be kept and reconfirmed from time to time.

4.2.2.3 Marketing innovation

OECD (2006:48) indicates that marketing innovation is concerned with improving the mix of target markets and how chosen markets are best served. A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations target addressing customer needs better, opening up new markets, or newly positioning a firm's product on the market with the intention of increasing firm's sales. ECFs cannot rely on word of mouth or the power of their social networks only but must also engage in active marketing, as in branding of vehicles and earthmoving equipment, coupled with catchy websites will ensure a competitive advantage.

4.2.2.4 Organisational innovation

An organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations (OECD, 2006:49). For example, construction sites are used to a more projectized organisational structure as opposed to a normal functional organisational structure. Through organisational innovation ECFs may opt for a more matrix type of an organisational structure where ECFs can draw on the services of employees who would not normally be directly engaged in a project. This was further justified by Hansen and Birkinshaw (2007) when they concluded that organisational innovation can increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction, gaining accesses to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies.

While literature is more unanimous on the various dimensions of innovation (which are vital toward ECFs gaining and maintaining a competitive advantage), there has also been diverse understanding among scholars regarding the classification of the construct. The next section delineates the various classifications of innovation.

4.3 CLASSIFICATION OF INNOVATION

Authors (OECD, 2006; Alsaaty, 2011; Teixeira, Henriques & Pontes, 2013) have classified innovation variously according to different criteria. There has been classification based on extension and intensity of outcomes of innovation, classification based on the contribution of each type to the firm's performance, classification which depicts the domains of innovation and classification based on the object, field, relevance (pace) or origin. These various classification types are discussed briefly in the next sections.

4.3.1 EXTENSION AND INTENSITY OF OUTCOMES OF INNOVATION

According to Teixeira et al. (2013:127) innovation may be typified as radical, incremental innovation or semi-radical. Radical, also termed disruptive, breakthrough or discontinuous innovation, involves long term developments requiring intensive investments which usually result in the provision of something entirely new (Kuratko, 2009; Teixeira et al., 2013). This type of innovation is a complete shift from the old to new with heavy impact and is usually associated with huge resource input (Norman & Verganti, 2012). This innovation brings with it a complete control of the market and a competitive advantage to the innovator. In ECFs' context, an example is the latest method introduced by a Cape Town-based construction firm called pipe bursting. This method entails installation of a new pipe by bursting into the existing old pipe without disturbing the surface.

Incremental innovation refers to introduction of new products, processes or changes gradually using relatively smaller amounts of resources (Norman & Verganti, 2012; Teixeira et al., 2013; Katz & Green, 2014). Innovation need not necessarily imply a groundbreaking process or a piece-meal activity but can be repetition of the same things while achieving better results (Norman & Verganti, 2012). Contractors in the past used survey equipment that required about three general workers and one trained surveyor to take levels. Recently, through incremental innovation, this is no longer required, as new and improved survey equipment called '*Total Station*' can achieve same results with only one competent person. Some innovative activity is neither radical nor incremental, thus some innovations are described as semi-radical, which

may involve significant changes in the Organisational processes or technology but normally not both (Teixeira et al., 2013). For example, the recent move by contractors, in an effort to employ more labour, to mix mass concrete by hand while also relying on batch plants (technology) to speed up progress from time to time can be seen as semi-radical in ECFs' context.

4.3.2 CONTRIBUTION OF EACH TYPE TO THE FIRM'S PERFORMANCE

Alsaaty (2011:6) identifies two broad categories of innovation. The first category includes three groups of innovation, while the second category, also contained in the OECD's (2006) Oslo Manual, adopts a four group classification which depicts the domains of innovation. The first category that includes the three groups of innovation according to Alsaaty (2011) outlines innovation as follows:

- **Technological innovations**: These are innovations resulting from the use of technology. In ECFs' context, the pipe bursting innovation technique mentioned in 4.3.1 above will also fall under this category.
- **Technical innovations**: Innovations related to the primary function of the firm are technical if the firm's primary function is to innovate.
- **Administrative innovation**: Administrative innovation takes place in the social system of the organisation. A recent trend in construction that has been implemented and adopted by many actors in this industry is to use local labor in the execution of projects. This is not only done to improve the local economic development but it also assists in breaking resistance amongst pressure groups. ECFs also benefit from this innovative means because they only have to provide accommodation and transport to the core team, while the locally employed work force can just walk to the project.

The second category (depicted in *Figure 4.1* below) adopts a four group classification which depicts the domains of innovation as follows (OECD, 2006; Alsaaty, 2011):

- **Capabilities**: Organisational capabilities are the complex network processes and skills that determine how efficiently and effectively the inputs

in the organisation will be transformed into outputs (Ehlers & Lazenby, 2011:116).

- **Process innovations**: These are typical innovations where there is a significant change in production or delivery methods. The use of labour-intensive construction methods as opposed to the technological reliance on machines by ECFs is not only a cost effective method but a competitive advantage as well.
- **Marketing innovations**: These are innovations that implement new marketing methods. ECFs' concentration on branding of vehicles and earthmoving equipment, coupled with catchy websites, is a typical example of marketing innovation.
- **Organisational innovations**: These are innovations that implement new organisational methods. As indicated under section 4.2.2.4, ECFs may opt for a more matrix type of an organisational structure where they can draw on services of employees who would not normally be directly engaged in a project.

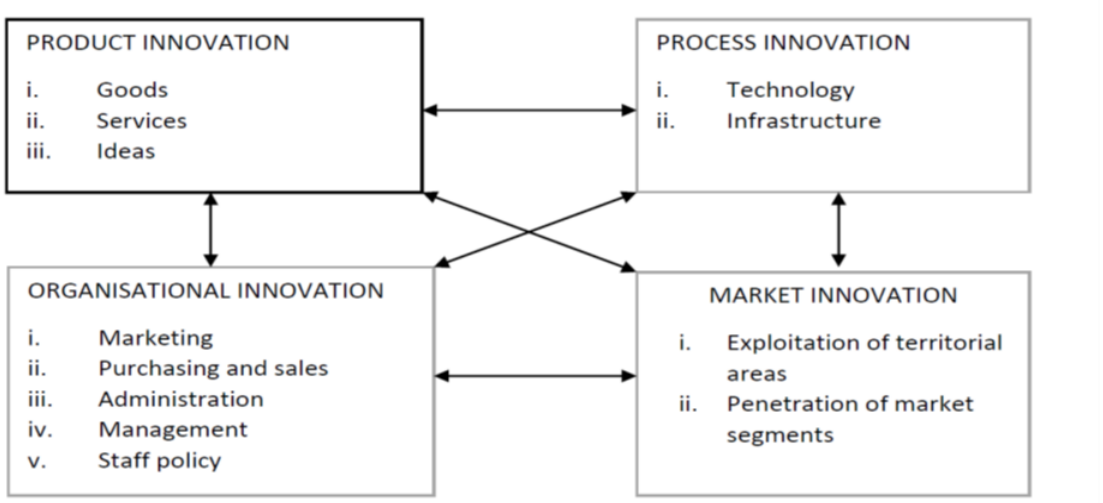


Figure 4-1: Domains of innovation

Source: Adapted from Lundvall (1992)

4.3.3 CLASSIFICATION BASED ON OBJECT, FIELD, RELEVANCE OR ORIGIN

Norman and Verganti (2012) suggest that innovation classification (Table 4.1 below) may be determined by the object, field, relevance (pace) or origin outlined as follows:

i. **Object**: In terms of this innovation focus is whether innovation is product or service related. Innovation may be a new roofing system or new procurement system ECFs developed.

ii. **Field**: Given the various domains innovation may depend on whether it is organisational, technology, marketing or product related.

iii. **Relevance (pace)**: The pace at which innovation is introduced can determine whether innovation is incremental or radical.

iv. **Origin**: This type of innovation will determine whether innovation originates from research and development, incorporation, imitation or experience.

Table 4-1: Innovation as a multifaceted concept

Depending on the object • Product • Service	Depending on their relevance • Incremental • Radical
Depending on the field • Technology • Organisational • Marketing	Depending on their origin • R & D • Incorporation • Imitation • Experience

Source: Norman and Verganti (2012)

Following the classifications outlined above, the dominant characteristics of innovation appear to be (i) radical or incremental innovation, (ii) innovation based on the contribution of each type to the firm's performance (technological, technical or administrative), (iii) domains of innovation (capabilities, process, marketing, organisational) (iv) object, field, relevance (pace) or origin. In the opinion of the researcher, the domains of innovation (capabilities, process, marketing, organisational) appear to capture the key components of innovation relevant to the study. The researcher contends that successful adoption and implementation of the OECD (2006) model could be facilitated by social networking, which creates innovative capabilities for the firm. ECFs could, for instance, enter into alliances with more established construction firms, suppliers or customers for delivery of innovative products, Essentially, ECFs' successful implementation of process, marketing or organisational innovations would be largely influenced by social networking. Having

analysed the dimensions and classifications of innovation by various scholars, the study's attention shifts to investigate a typical framework for innovation in construction.

4.4 FRAMEWORK FOR INNOVATION IN CONSTRUCTION

The stages of innovation have been classified in various ways by different researchers. Rogers (2003) proposed a five-stage model of innovation which includes knowledge, persuasion, decision, implementation and confirmation. Wolfe (1994) suggests ten stages including idea conception, awareness, matching, appraisal, persuasion, adoption decision, implementation, confirmation, routinization and infusion. Hansen and Birkinshaw (2007) present innovation as a sequential, three-phase process that involves idea generation, idea development, and the diffusion of developed concepts that includes six critical tasks, namely, internal sourcing, cross-unit sourcing, external sourcing, selection, development, and company-wide diffusion of the idea. Combined, these classifications by Hansen and Birkinshaw are called Innovation Value Chain (IVC).

The first phase of the IVC is to generate ideas that can happen inside a unit, across units in a company, or outside the firm; the second phase is "to convert or select ideas for funding and develop them into products or practices and the third phase is to diffuse those products and practices" (Ozorhon et al., 2010:7). The IVC model proposed by Hansen and Birkinshaw (2007) and outlined in Figure 4.2 below is based on the level of innovation capacity.

Figure 4-2: Framework for analysing innovation in construction

Source: Ozorhon et al. (2010:7)

In this model, ideas are generated through the acquisition of necessary knowledge and investment. In turn, these ideas are converted into product, process and service innovations within the firm. These innovations are exploited to achieve performance benefits and impacts. The first two stages of the innovation process are the decision to innovate and the decision on how much to invest in innovation (innovation input). In this regard, the decision to innovate can be made only after an innovative idea has been identified or an opportunity is recognized and a potential solution for "what" has been identified. According to de Jong (2006:10), the decision to proceed with idea implementation is based on three theoretical arguments: 1) perceived pay-off (expected value of exploitation, both monetary and psychic); 2) situation control (the psychological mechanisms underlying an individual's decision to innovate) and 3) intrinsic motivation. Firms decide to engage in innovation and on how much to invest under the pressure of competition. In making these decisions, it seems, firms rely on the knowledge accumulated from previous innovation activities.

In the context of ECFs, social capital literature provides an explanation for both opportunistic behaviours in construction projects as well as the rewards for those firms that put extra effort into the exploration of networks with other firms (van der Vlies & Maas, 2009:1). This is even more applicable to ECFs in South Africa, which is

characterized by high levels of enterprise failure, poor levels of quality, and a lack of process and productivity improvement (Sidumedi, 2009: iv). This high level of enterprise failure is caused by ECFs that continue to be regarded by construction clients and suppliers as a high commercial risk (Ncwadi, 2007). Social capital theory, as espoused in Chapter 2, thus appears to be helpful to explain how the networks could enhance the acquisition of necessary knowledge and investment. The construction framework that has been discussed suggests that ECFs should be able to convert various sources of knowledge and ideas into final outputs and consequently compete against their rivals. In the next section we investigate this innovativeness amongst ECFs.

4.5 INNOVATION AMONG EMERGING CONSTRUCTION FIRMS

Various authors argue that innovation has demonstrated a strong and influential relationship with small business performance (Akgun, Keskin, Byrne & Aren, 2007; Valmohammadi, 2012). This relationship was also extended to other areas of business by authors as innovation has been demonstrated to play significant roles in forging competitiveness, profitability and sustainability of businesses across the globe (Valmohammadi, 2012). Other studies have also found that a positive relationship exists between innovation, competitiveness and firm performance (Masso & Vahter, 2007; Rosli & Sidek, 2013). Rosli and Sidek (2013:9) found that product and process innovation positively and significantly impacted firm performance.

In order to perform well economically, it is apparent that emerging construction firms need to innovate. Various scholarly literature indicates the significant relationship between innovation and firm performance (Mohnen & Therrien, 2003; Ncwadi & Dangalazana, 2005; Mansury & Love, 2008). Innovation boosts economic performance should be a basic understanding for ECFs that intend to compete. In fact, innovation is seen as the critical factor “for fuelling long-term sustainable economic growth and, concomitantly, employment creation and poverty alleviation in all economies, both developed and developing (Gyekye et al., 2012:915).

According to Sidumedi (2009: iv), innovation in corporate culture has been identified as one of the ingredients that can be used to improve the performance of South African construction firms. The findings of these studies imply that ECFs, in order to enjoy a better firm performance, must find innovative means of delivering their products and/or services to their customers. This further implies better and unique organisational and marketing initiatives. For instance, in Estonia, decisions of firms to innovate positively related with the orientation to international market, existence of formal legal institutions protecting innovations and access to national subsidies (Masso & Vahter, 2007). In a study that aggregated empirical evidence regarding the innovation–performance relationship in SMEs, Rosenbusch, Brinckmann and Bausch (2011:454) found that both innovation orientation and innovation activities create value for new and established SMEs. Alsaaty (2011:3) also argues that innovation translates into organisational renewal, financial gain, improved productivity and firm competitiveness.

Despite having always been among the driving forces of the economy, the construction industry around the world has always been criticized for its lack of efficiency with regard to research and development in comparison to other industries and its unwillingness to innovate (Ozorhon et al., 2010:1). Conventional perspectives on innovation emphasize product research and development and the construction industry fails to engage in innovative methods of creating new offerings. Similarly, the construction industry in South Africa is renowned for low levels of innovation and therefore, there is a need to stimulate innovation in this industry (de Jong & Hulsink, 2010:5; Rust & Koen, 2011:2).

Innovation, particularly radical innovation, which entails both intensive and extensive investments over time, has usually been associated with large business enterprises (Hogan & Coote, 2014:1610). Product innovation in large, established firms resulting in new products has received extensive research attention to the neglect of process innovation, which often occurs in small businesses such as ECFs. Yet small businesses are known to dominate the economic map of all economies, irrespective of level of development (Okpara & Kumbiadis, 2008:109). This means that innovation

in small businesses has not received the much-needed attention considering the critical role they play in local as well as international economies.

Despite the perception that ECFs are characterized by low propensity to innovate due to low technology usage, resource scarcity and incapability, construction practitioners are said to actively pursue innovation management as an explicit or tacit business strategy (Sexton et al., 2001; Alsaaty, 2011). Rosli and Sidek (2013) argue that emerging businesses in the construction sector in South Africa must adapt to changes and innovate for success. It is therefore imperative for ECFs to innovate. The source of innovation for small businesses, which invariably includes ECFs, is largely derived from networking, especially with external entities. The next section investigates challenges faced by ECFs which could be the main sources of the lack of innovation in construction.

4.5.1 BARRIERS TOWARDS INNOVATION AMONGST SMALL BUSINESSES

Over the last decade or so, numerous research projects have sought to identify barriers to innovation in the construction industry. Various scholars (Mohnen & Roller, 2005; Bratianu, 2009; Guijarro, 2009) have pointed out several barriers that are an impediment to innovation in the construction industry. For example, Barrett, Abbott, Ruddock and Sexton (2007) cite clients and industry bodies protecting their own interests; complex network structure of construction; supply chain problems; costs associated with innovation; poor strategy and implementation; inappropriate legislation and employment practices and organisational culture, leadership and philosophy. These barriers are discussed in the next section.

4.5.1.1 Clients and industry bodies protecting their own interest

Ivory (2005) posits that many clients are unwilling and unable to effectively encourage innovation because of competition with other priorities; short term capital cost involved in innovating; internal politics and difficulties in achieving consensus among project stakeholders; increased risk exposure and workloads in managing innovation. Sexton

et al. (2008) point out that there are many client types and regulating bodies and while some prominent clients and bodies take their leadership responsibilities seriously, the majority of construction clients and bodies play a passive role in the innovation process.

In the context of ECFs, government priority in terms of innovation is more focused toward established construction firms who are believed to have enough resources and expertise to innovate. ECFs in South Africa are further entangled between regulating bodies (CIDB and NHBRC) whose requirements and/or specifications are at times in conflict with one another. For example, ECFs graded 5CE/GB in terms of CIDB grading will often be rated poorly by NHBRC measures when ECFs tender for low cost housing contracts.

4.5.1.2 Complex network structure of construction

Construction occurs through complex and often unwieldy constellations and networks. The way the risks and benefits of innovation are distributed through these networks is often problematic in not fairly reflecting the proportion of each firm's contribution to the process (Winch, 2008). This separation of potential innovators from the potential benefits of their innovations will always demotivate ECFs, as most of the time ECFs are sub-contractors in such complex projects.

4.5.1.3 Supply chain problems

The construction industry is often affected by lack of integration of manufacturers (Winch, 2008; Dodgson & Gann, 2010). In ECFs' context, this would mean that while a contractor's benefits are project-specific, manufacturer's benefits are product-specific. This will often present a dilemma that while ECFs are best placed to identify innovations, material/product manufacturers have little incentive to respond in a time–frame which enables ECFs to benefit from them.

4.5.1.4 Costs associated with innovation

Businesses, big or small, would love to engage in innovative activities but sometimes the fear of failing to succeed after investing a lot of money becomes a constant worrying factor. Most studies reveal that the cost of innovation is one of the most important and common barrier to innovation (Mohnen & Roller, 2005). A study by Lim and Peltner (2011) revealed that high innovation costs have a negative and significant effect on the innovation propensity of the firm and small businesses, due to their limited resources. In ECFs' context, it will be easier and cheaper to innovate in incremental innovation (as in improving construction methods) than radical innovation (as in inventing a new technology to install new pipes) due to the costs involved in disruptive innovation.

4.5.1.5 Organisational culture, leadership and philosophy

Cultural impediments to innovation also exist in construction industries around the world. In general, innovation is perceived as an academic activity, which in most instances produces theoretical results of little commercial value (Dodgson & Gann, 2010; Loosemore & Phua, 2011). The South African construction industry is characterized by middle class individuals who are not educated and are fascinated by materialistic possessions such as expensive German cars. Such fascinated ECFs' owner/managers will not be committed to invest in their businesses but their culture, leadership style and philosophy will be to outsource or hire out wherever possible.

4.5.1.6 Inappropriate legislation and employment practices

Innovation can also be stifled by clients' employment practices. Research indicates that non-traditional relational procurement methods such as alliances and partnerships would seem to benefit innovation (Walker & Maqsood, 2008). However, alliance contracts are often undermined by the culture of the industry in which they have to exist and ultimately, alliance contracts, like any other project, are staffed by people who have been educated and instilled in the confrontational and fragmented traditions of the construction industry.

A typical example in ECFs' terms is a case where a South African contractor is to joint venture with a foreign-based contractor who is not used to working with women in the civil industry. While the South African counterpart endeavours to create a suitable working program for the females, the foreign-based partner normally sees that as a waste of time and resources. This factor is also compounded by the inappropriate legislation where government will be expecting ECFs to employ equal numbers of females to males in an industry where physical work is the order of the day.

4.6 SOCIAL NETWORKS AND INNOVATION IN SMMES

Small businesses including ECFs often are plagued with scarcity of resources such as capital, financial, technical, management and marketing skills, among others (Nieman & Nieuwenhuizen, 2010; Olawale & Garwe, 2010; Dandago & Usman, 2011). This resource constraint reduces the innovative capacity of these small business entities. The current author argues that a logical path to innovation in small businesses is social collaboration(networks) with other organisations, internally developed through knowledge accumulation (experience, competencies and skills) and/or imitation or adopted externally through innovation from others (Robinson & Stubberud, 2012).

On the one hand, accumulated knowledge within the firm could translate into the firm's capabilities that support innovation. Internal networking, that is bonding social capital, provides a conducive environment for a firm's development of capabilities, which in turn stimulates innovation (Robinson & Stubberud, 2012). Alsaaty (2011:4) argues that the employees (managers or skilled workers) constitute sources of new ideas which, when implemented, could result in innovations in the organisation. On the other hand, Alsaaty (2011:4) contends that outsiders (external networking) may provide useful sources of vital information required by firms to pursue innovative strategy. Collaborations with consumers, suppliers and other firms often constitute valuable platforms for crafting and pursuing innovative strategies for enhanced competitiveness and profitability, especially in small firms (Alsaaty, 2011; Robinson & Stubberud, 2012). For ECFs, collaboration with others by way of social networking is an important source for innovation. It is acknowledged in literature that innovation strongly

influences competitiveness amongst business organisations. Competitiveness forms the next area of focus for this study in the next section.

4.7 FIRM COMPETITIVENESS

Competitiveness has become a concept which has attracted highly contested definitions from various perspectives and therefore does not have a universal or exact meaning (Akimova, 2001; Lu, 2006; Flanagan, Lu, Shen, & Jewel, 2007). Competitiveness is defined by OECD (2006) as “an aggressive willingness to compete, the quality of being bold and enterprising”. Based on this OECD definition one can contest that it is also the degree to which ECFs can, assuming free and fair market conditions, produce goods and services which meet the test of both national and international markets, while simultaneously maintaining and expanding real income over the long term.

4.7.1 COMPETITIVENESS FROM A MACRO PERSPECTIVE

Some authors view the concept from a macro perspective, that is, from a national or industry level. For instance, Samuelson and Nordhaus (2001) in Flanagan et al. (2007) explained that competitiveness refers to the extent to which a nation’s goods and services can compete in the marketplace, which largely depends on the relative prices and quality of domestic vis-à-vis foreign goods. South African businesses are currently pitted against their fellow international counterparts in terms of the National Government’s ongoing relationships with other nations. Soon South African construction firms will be working with their fellow Brazilian, Russian, Indian and Chinese (BRICK) members and having to showcase the quality of their goods and services against foreign goods.

4.7.2 COMPETITIVENESS FROM A MICRO PERSPECTIVE

Some authors view competitiveness from a micro perspective. In this regard, they explain competitiveness from a firm level and or project level standpoint (Porter, 2003; Flanagan et al., 2007; Ocloo, Akaba & David, 2014). At firm level, Porter (2003) defines

competitiveness as a firm's ability to attract and maintain activity which increases the prospects for achieving a competitive edge. Similarly, other authors perceive competitiveness in terms of the extent to which a firm's products and services exhibit an edge over their competitors for continued survival and competition for markets, resources and revenues (Ocloo et al., 2014). ECFs will compete with their bigger rivals if they concentrate on their key capabilities since they do not have the necessary financial resources to out-muscle their bigger counterparts. Although it has not been widely accepted yet, the concept of competitiveness at the project level has been developed slowly but steadily with the evolution of competitive bidding in construction. Lu (2006) indicates that competitiveness at the construction project level is about a contractor's capacity to win a contract and undertake that project.

While continuous innovation activity is the key source of long-term firm success, as argued by Schumpeter (1934), competitiveness, which is that prosperity of any area, is fundamentally driven by productivity (Porter, 2003). Thus, competitiveness is based on the capacity to innovate, which in turn leads to increased productivity. The competitive edge of a firm is ultimately defined by the bundle of its unique resources exemplified by both intangible resources such as skills, brand and patents, on the one hand, and on the other, physical resources including equipment and machinery and buildings.

Borrowing from the Resource Based View of a firm, resources (skills, knowledge, experience and capabilities) here refers not only to the possession of firm-specific resources but also to the effective utilization of these resources to achieve competitive advantage. Distinguished from endowments, firm-specific resources are those that meet the criteria of valuable, rare, non-substitutable, imperfect imitability and imperfectly immobile. It is thus not surprising that some scholars maintain that firms that are able to generate innovations may be more successful in improving performance and maintaining competitive advantage (Lipit, 2006; Artz, Norman, Hatfield & Cardinal, 2010; Rosenbush et al., 2011; Atalay, Anafarta & Sarvan, 2013).

Competitiveness is the capability to produce goods and services effectively and efficiently and its potential has to be realized in a firm's everyday operations (Cetindamar & Kilitcioglu, 2013:8). The definition of competitiveness for the purpose of this study is **the capability, capacity, competence, training and innovativeness of ECFs to exploit their social capital networks in order to enjoy a better firm performance than their rivals**. Generally, factors such as leverage, export activity, location, size and the index for management competence significantly affect firm competitiveness. A firm's competitiveness depends not only on its productivity but also on the quality of its product and the firms' ability to improve or protect its position in relation to competitors which are active in the same market (Sutton, 2007; Riley, 2012). ECFs' competence should not only be seen in terms of the number of projects delivered but also in terms of the quality of the final deliverables they have delivered.

4.8 FIRM PERFORMANCE

Scholars (Hudson, Smart & Buurne, 2001; Phillips, Wee & Shanka, 2003; Chong, 2008) assert that SMEs may be differentiated from larger companies by a number of key characteristics such as personalized management, with little devolution of authority, severe resource limitations in terms of management, manpower and finance, reliance on a small number of customers, and operating in limited markets; flat, flexible structures and reactive, firefighting mentality. The significant differences in the structure and philosophy of SMEs indicate a need to assess the performance of SMEs differently from large firms (Fatoki, 2011:198).

Chong (2008) declares that there are four main approaches to measure the performance of organisations: the goal approach, system resource approach, stakeholder approach and competitive value approach. The goal approach measures the extent to which an organisation attains its goals while the system resource approach assesses the ability of an organisation to obtain its resources The stakeholder approach and the competitive value approach evaluate the performance of an organisation based on its ability to meet the needs and expectations of the external stakeholders, including the customers, suppliers, and competitors. Among these approaches, the goal approach is the most commonly used method due to its

simplicity, understandability and *internally focused nature*, and it is adopted for purpose of the current study.

According to Richard, Devinney, Yip and Johnson (2008), the goal approach directs the owner-managers to focus their attention on the financial (objective) and non-financial measures (subjective). Atieno (2009) notes that financial measures are objective, simple and easy to understand and compute but suffer from being historical and are not readily available in the public domain, especially for SMEs. ECFs' understanding of performance is totally different than that of established firms. For instance, established firms see performance as the number of projects completed on time and within budget while ECFs would want to argue the number of vehicles (assets) purchased over a period. How well firms are faring, as determined by how they perceive the results of their operations measured against their own internal standards or against the competition, is a matter of great concern for business organisations. The next section attempts to clarify the concept of firm performance.

4.8.1 DEFINING FIRM PERFORMANCE

Firm performance is one of the many ambiguous management concepts. While some authors have attempted to define the concept, others have applied its measurement indicators as a definitional proxy. Investorwords (2011) defines performance as the results of activities of an organisation or an investment over a given period. On the one hand, Lin, Peng, China and Kao (2008) define firm performance as the outcome of organisational operations. These authors (Lin et al., 2008) identified these outcomes to include achievement of a firm's internal and external objectives. Such outcomes could translate into sales growth or increase in the number of employees; competiveness perceived through innovation outcomes typified by product, process and organisational innovations or profitability and growth (Cook & Wills, 1999:22; Zainol & Ayadurai, 2011:61).

On the other hand, some authors (Attiya & Robina, 2006; Hafeez, Chaudhry, Zafar Ullah Siddiqui & Rehman, 2011) have adopted a less definitional approach and proceeded to identify relevant performance measurement indicators. These authors

contend that organisational performance is measured based on three specific areas of firm outcomes: (i) financial performance (profits, return on assets, return on investment, etc.); (ii) market performance (sales, market share, etc.); and (iii) shareholder return (total shareholder return, economic value added, etc.). Firm performance could then be explained in terms of a set of organisational outcomes which may include financial and non-financial connotations. The current study perceives firm performance in terms of **organisational operating outcomes, which encompasses financial as well as non-financial dimensions.**

4.8.2 IDENTIFYING FIRM PERFORMANCE INDICATORS

Determination of firm performance indicators is one area which has raised a lot of ambiguity in research. Adopting the traditional economic indicators, some authors have measured firm performance in terms of sales performance (market share, sales volume, prices, numbers of new customers, and numbers of customers retained) or financial analysis (return on equity, return on assets, return on sales) (Lwamba, Bwisa & Sakwa, 2014). Other authors from the traditional school of thought have measured firm performance using such indicators as customer satisfaction, customer loyalty, and relationship development (Chong, 2008; Alasadi & Al Sabbagh, 2015). In the construction industry customer satisfaction and loyalty, quality of product and competitiveness, among others, are very important indicators of business performance in the highly competitive environment. However, there are allegations of unethical conduct of tender fixing/rigging, bribery and corruption, to mention a few, which have plagued the industry, making it difficult for objective determination of competitive performance measurement of construction firms in South Africa and many developing economies.

Another notable measurement instrument often applied which comprises both a financial and non-financial indicator is the balanced scorecard (Krechovská, 2014:86). The balanced scorecard measures four strategic areas related to financial, customer, process and learning and growth (Kaplan & Norton, 1996; David, 2011). Thus, using the balance scorecard, ECFs are able to determine their financial progress and the perception their customers have of them.

4.9 MEASURING VARIOUS VARIABLES OF THE STUDY

The theoretical background offered by various scholars in the preceding sections enables the study to identify measurement methods for the various constructs in this study. The next section deliberates on measurement on innovation, competitiveness and firm performance.

4.9.1 MEASURING INNOVATION

Dahlander and Gann (2010:702) posit that various measures for innovation are employed in empirical studies, including innovation breadth, which has been shown to underpin firm performance. Ozorhon et al. (2010:6), however, maintain that measuring innovation in the construction industry is an important yet difficult task. This is compounded by the fact that although indicators are available, they are not really sufficient to capture the reality of the process. Moreover, this gulf between practice and measurement is also partly due to the project-based nature of construction innovation, in particular, its transitory nature that further complicates measurement of the concept. The level of analysis in such project-based focus often does not include much of the innovation-rich and value-adding construction activity that is inherent in other sectors such as manufacturing, architectural and technical consultancy (Barrett et al., 2007).

In order to develop measures for innovation that are appropriate to particular sectors, the systems of innovation approach argue that innovation should be seen as an evolutionary, non-linear and interactive process, requiring intensive communication and collaboration between different actors (Edquist, 1997). Measuring innovation as a system is necessary to capture the context in which organisations form and the interactive engagements involved, including the resource capabilities of firms to ensure that expectations of innovations are tied to capabilities of firms. Besides measuring the inputs and outputs of innovation, this approach also investigates the contextual variables as well as the impact in order to fully realize the benefits of innovation (Ozorhon et al., 2010:6). In the context of this study, and as discussed under barriers to innovation, this implies taking into consideration all the contextual

factors such as costs to the organisations; organisation's corporate culture; the value orientation and traits of the entrepreneurs; the competitive edge and strategies of the firm that could potentially impact on the ability of ECFs to innovate. Innovation among ECFs in the context of this study will be measured based on OECD (2006) domains of innovation, namely: introduction of new or significantly improved products, operational processes, organisational or managerial processes as well as marketing methods.

4.9.2 MEASURING COMPETITIVENESS

Like the definitional differences, the measurement of competitiveness raises disagreements among researchers. While some authors base measurement of competitiveness on traditional economic indicators such as profitability, productivity or market share, others adopt indicators applicable in a global contest by measuring performance (a proxy for competitiveness), overseas sales, profits, assets and investments (Lu, 2006; Gasa, 2012). Gasa (2012) argues that firm competitiveness is generally related to added value for customers in the service market. Enhancing added value can be estimated by sales growth, correlated positively with service advantage and market acceptance.

Models have been developed for measuring competiveness in the construction industry. Lu (2006) developed a measurement instrument by integrating Porter's theory (environmental competitive variables) and Resource Based View theory (firm's internal capabilities of firms). Lu's (2006) model provided an IT program for the measurement of competiveness of construction firms. The model is used for diagnosing the firm's competitiveness, ranking contractors in order of competiveness and for pre-qualifying contractors in a bidding process. Lu's (2006) model appears appropriate for measuring competiveness in ECFs since it has been proven reliable and valid in measuring competiveness in the construction industry (Flanagan et al., 2005). In the context of ECFs and for the purpose of this study, the following measures of competitiveness are applicable (Schmuck, 2008:199; Gasa, 2012:72):

- The ability of ECFs' owners to manage their businesses effectively.
- Marketing the value proposition of the company.

- Considering and continuously implementing innovative strategies.
- Being conscious of the business environment.
- Having the strongest brand reputation in the market.
- A higher growth rate than competitors and the market as a whole.
- Higher-than average net profit margin (compared with others in the same industry).

4.9.3 MEASURING FIRM PERFORMANCE

Measuring firm performance is complex because of the absence of tangible asset and profitability data as well as the subjective nature of the phenomenon (Wang & Ang, 2004:59; Achtenhagen, Naldi & Melin, 2010:291). The extent of a firm's performance can be measured in several ways. In the past, construction companies used financial measures such as return on investment, return on equity, gross profit or net revenue to measure and evaluate their performance. The dissatisfaction with financially based performance measurement that financial indicators are lagging indicators, in the sense that they tell the results of managerial actions already taken has resulted in scholars adopting other non-financial measures for firm performance (Ali, Al-Sulaihi & Al-Gahtani, 2012:126). These measures include client satisfaction toward products and services, safety, productivity, defects and customer retention.

Other scholars such as Ribeiro (2009:274) have evaluated the impact of knowledge management on performance of construction firms in Portugal based on their sales. Authors (Ribeiro, 2009; Fatoki, 2011; Ali, Al-Sulaihi & Al-Gahtani, 2012) are unanimous that firm performance is a multidimensional concept whose indicators can be departmental (production, finance or marketing) or consequential (growth and profit). Some authors (Dawes, 1999; Harris, 2001; Ribeiro, 2009; Eniola & Entebang, 2015) argue that the concept can be measured with objective indicators (hard financial data) or subjective indicators (perceived performance relative to those of the relevant competitors). In the construction industry, performance measurement that is not appropriately designed and implemented for the industry can be misleading at times. This is especially true for ECFs as they operate with complex supply chains with

different clients achieving their own goals (Beatham, Anumba, Thorpe, & Hedges, 2004; Love & Holt, 2008; Gasa, 2012). In ECFs' terms supply chains have an adverse effect on the performance of the contractor, not only inhibiting innovation, as alluded to earlier, but clients sometimes separate the supply side of products from installation. Once the party responsible for supplying delivers late or fails to deliver per the installer's schedule or delivers an inferior product, this has an adverse effect on the other party (the installer/contractor).

Currently, and as elaborated in Chapter 3 under section 3.7, SMMEs in the South African construction sector are assessed on the basis of the financial 'wellbeing' of their entities and a demonstrable track record of work that they have done previously. It is upon the assessment of both these variables that they are then given a particular grade by the Register of Contractors managed by the Construction Industry Development Board (Gasa, 2012). The proposed performance measurement instrument to be applied in the context of this study shall include **both financial (increased profitability (GP), return on equity (ROE), increased sales volume as in number of projects executed and an improved turnover) and non-financial (reduced accident rates and fatalities, improved customer retention/loyalty and improved market efficiency) indicators.**

4.10 CONCLUSION

This chapter analysed the determinants of innovation activities and the impact of innovation on competitiveness and firm performance. Evidence across literature has shown that there is an increasing appreciation that the ability to master innovation is decisive in determining a firm's competitiveness and, ultimately, its performance. The construction industry around the world, including South Africa, has been found to be notorious for low levels of innovation with no focus on innovation efforts in the industry despite the relative importance of the construct. Impediments toward innovation such as clients and industry bodies protecting their own interest; complex network structure of construction; supply chain problems; costs associated with innovation; poor strategy and implementation; inappropriate legislation and employment practices and organisational culture, leadership and philosophy were outlined as key barriers toward

innovation. It has been suggested that the generation of new knowledge and its transformation to improved performance of firms occur through various stages. In this regard, the IVC model was introduced. It proposes three phases: the first phase is to generate ideas, the second relates to converting ideas for funding and developing them into products or practices; and the third is to diffuse those products and practices (Ozorhon et al., 2010:7). The model demonstrated the complexity of institution-based and resource-based factors that affect ECFs' growth in a challenging environment such as the construction industry.

In conclusion, the opening quote by Bertrand Russell (2004:64) reflects the dilemma and challenges confronting ECFs. They have to be aware that innovation and competitiveness can yield huge rewards in the form of profits, but also huge penalties in the form of job losses. Therefore, ECFs should strive to achieve the right balance between innovative developments and their impact on the wider community. The various constructs (innovation, competitiveness and firm performance) were defined with their respective measurements indicated and contextualized for the purpose of the study. Other constructs such as networks, entrepreneurship and small businesses were also defined in the context of the study in Chapters 2 and 3, respectively. The next chapter will therefore look at the methodology applied in the study and how the study measured these constructs (social networks, small businesses, innovation, competitiveness and firm performance) in the field.

CHAPTER 5: METHODOLOGY

"People don't usually do research the way people who write books about research say that people do research"

(Bacharach [1990] in Dane [1991:201])

5.1 INTRODUCTION

While the previous chapters unravelled previous work done by other scholars in sharing knowledge about the current study's variables of interest, the current chapter discusses the research methodology (theory of method) employed in the study. The purpose of this chapter is to discuss the rationale behind the use of the methods and techniques selected for the current study. In discussing research methodology, there are three major dimensions that need to be considered, namely the research philosophy, the research design and data.

The philosophical stance of the researcher strongly influences the reasoning of the research and both will influence the data required by the research and the analysis of that data. Research methodology refers to the principles and procedures of logical thought processes which are applied to a scientific investigation (Rudestam & Newton, 2001; Shakantu, 2010). Thus research methodology can be considered the overall strategy to achieve the aim and objectives of the research. Research methods, on the other hand, are merely tools. The chapter is, therefore, organized as follows: First is the discussion of the philosophical stance of the current research, followed by a discussion of the research design and data collection. The chapter will also discuss other critical issues such as the population, sample and ethical considerations.

5.2 RESEARCH PARADIGM/PHILOSOPHY

While the definition of a paradigm is a heavily contested ground, Babbie (2007:31) provides an illuminating definition of the term as "the fundamental models or frames of reference people use to organize their observation and reasoning". Sullivan (2012:460) defines a paradigm as the beliefs or set of assumptions about how the social world works and affects a research's overall stance and direction.

Shakantu (2010) however explains the philosophy which the research undertakes as an approach to knowledge generation consistent with Weaver and Olson's (2006:460) position that research philosophies are patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames, and processes through which investigation is accomplished. Shakantu (2010) also refers to the paradigm as a process of answering unanswered questions, creating that which does not currently exist and expanding the boundaries of our ignorance.

While there are many philosophies, or paradigms, to research, it is extremely important for the researcher to understand the views of the various philosophies. Two popular ways of classifying research paradigms are positivism and interpretivism (Cohen, Manion & Morrison, 2007:7). Positivism holds that science or knowledge creation should be restricted to what can be observed and measured, and it tends to rely exclusively on theories that can be directly tested or hypotheses that must be proved or disproved (Cohen et al., 2007; Mack, 2010; Bhattacherjee, 2012).

Interpretivism (subjectivism/constructivism), on the one hand, was founded on the notion that social reality is always seen by multiple people who interpret events differently, leaving multiple perspectives of an incident. Interpretivism therefore emphasizes the ability of the individual to construct meaning (Mack, 2010:7). Understanding these sharp distinctions is an important step because once the philosophies underpinning a study are weakly articulated; extraction of data becomes next to impossible. To arrive at the appropriate understanding, the research first had to review ontology and epistemology, as shown in Table 5.1 below.

Table 5-1: Definition of philosophies of research

Research philosophy	Its influence on the approach adopted by researcher
Ontology	• How the reality of the chosen topic is perceived, which will influence the way the research is conducted? • How is the reality perceived in one particular research? • Would this influence a change in the research or are things the same between one research area and another? • What is the assumed reality?
Epistemology	• Epistemology is the study of knowing and dealing with the questions of how what is known is known. • What are the claims of what is assumed to exist? • The theory of knowledge and how it ought to be validated.

Source: Sutrisna (2010)

The definitions highlighted in Table 5.1 above assisted in appropriately locating the current study. Although researchers in entrepreneurship tend to be more concerned with the definition of their object of study and the choice of data collection protocols than the philosophical assumptions that underlie their work, research should emanate from beliefs about what constitutes an understanding and explanation of a social phenomenon. The organizing idea of a continuum, with hard positivism at one end and constructionism at the other, can be used to point out the main epistemological and ontological assumptions. Positivism (objectivism) as an ontological position asserts that phenomena and their meanings have an existence that is independent from the actors. Positivism as an epistemological position advocates the application of methods of natural science to the study of reality and asserts that the truth is out there to be discovered (Cohen et al., 2007; Mack, 2010; Bhattacherjee, 2012).

Constructivism as an alternative ontological position, on the one hand, asserts that phenomena and their meanings are continually being accomplished by the actors. Constructivism/subjectivism as an epistemological position separates objects of natural science from the actors and allows the researcher to construct his/her own truth in viewing the world (Mack, 2010). Table 5.1 above shows that at an ontological level this study is based on positivism because there is a set of variables (social networks, entrepreneurship, innovation, competitiveness and firm performance) identified in Chapters 2, 3 and 4 whose relationships have an existence that is

independent from the researcher. At an epistemological level, however, the current study is premised on a positivist epistemological philosophical stance purely because there is evidence from both primary and secondary data that the social networking ability of ECFs, combined with their innovativeness, will ensure competitiveness and better firm performance as compared to their rivals.

5.3 RESEARCH APPROACH AND DESIGN

As already indicated in 5.2 above, this study adopted the positivist research paradigm, and the positivist paradigm underlies what are called quantitative methods (Cooper & Schindler, 2011). Quantitative purists maintain that social science inquiry should be objective, that is, time and context-free generalizations are desirable and possible, and real causes of social scientific outcomes can be determined reliably and validly. The current study can, therefore, be regarded as generally following the quantitative methods/approach since quantitative data was collected and analysed by statistical techniques in testing the study's hypotheses.

Various scholars (Burn & Grove, 2007; Kumar, 2011; Polit & Beck, 2012; Parahoo, 2014), on the one hand, have defined research design as "a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings" or as "a researcher's overall plan for answering the research question or testing the alternative hypothesis" or as "a plan that describes how, when and where data are to be collected and analysed". Based on the above and the arguments that were advanced in section 5.2 above on the research paradigms, it appears that a research design is a particular direction or roadmap that the researcher intends to take. The guiding roadmap for this study, in an attempt to, test research hypotheses posed in Chapter 1 was to conduct a survey amongst ECFs in the Free State Province of South Africa.

While the concept of social capital has been researched quite extensively in the past, there have been few studies undertaken, especially in the South African context, to investigate the relationship between social networks (as a dimension of social capital),

innovation, competitiveness and firm performance. The study was therefore exploratory in nature, as it investigated a new phenomenon which needed to be explored for better understanding of its constitutive nature (Kumar, 2011:11).

Exploratory research is useful when what is being investigated is unclear, ill-defined or little is known about it. It could also be a pilot study to gain a preliminary understanding of a phenomenon. This will then be succeeded by a more comprehensive and formal study (Cooper & Schindler, 2011:143). The study was also descriptive in nature and explored the relationship between variables while not investigating the causes of the relationship between the variables (Kumar, 2011:10). Zikmund, Babin, Carr and Griffin (2013:53) explain that descriptive research attempts to depict the characteristics of objects, people, organisations or environments; or attempts to draw a 'picture' of a given situation. It may also aim at establishing relationships or the interactions between two or more variables (Leedy & Ormrod, 2005:1; Cooper & Schindler, 2011:18).

5.4 DATA COLLECTION AND ANALYSIS

The one critical level of importance in research methodology is the extraction of data. On the data level, the collected data based on the characteristics can be generally grouped into quantitative and qualitative data. As a general rule of thumb, quantitative methods require quantitative data and the qualitative method requires qualitative data in the collection and subsequent analysis (Creswell, 2009). Leedy and Ormrod (2005) state that facts or data are needed to solve any research problem. These facts contain desirable aspects of truth and to extract the meaning of the data, certain methodologies are needed and will be discussed next.

5.4.1 COLLECTION OF SECONDARY DATA

Secondary data was used to lay a theoretical foundation for the study. These included published and unpublished books, theses, journals and conference papers relating to social networks, entrepreneurship/small businesses (emerging construction firms), innovation, competitiveness and firm performance. Information from secondary data

sources served as a strong foundation for the formulation and compilation of the research instrument.

5.4.2 COLLECTION OF PRIMARY DATA

The primary data was derived from the empirical study as opposed to theory or non-empirical classification. Structured questionnaires were used to collect primary data from the respondents. Some questionnaires were delivered to the Construction Industry Development Board's (CIDB) office (see letter of permission attached as Annexure A), where randomly identified and sufficiently literate respondents completed the questionnaires on their own and returned them directly to the CIDB's office. Other questionnaires were delivered to personally by the researcher to respondents based on the information received from CIDB about the respondents' physical locations. Respondents that were not sufficiently literate were assisted by trained research assistants to complete their questionnaires and were visited physically at their offices.

5.4.3 DATA PREPARATION AND CODING

Data preparation and coding involves assigning numbers or symbols to responses to facilitate the grouping of responses into a limited number of classes or categories (Cooper & Schindler, 2011:405; Zikmund et al., 2013:465). The research instrument used for data collection, relied on the Likert-scale, was pre-coded with numerical values. There was therefore no need to code the responses. The responses had already been pre-assigned numerical values and were captured as thus. The returned questionnaires were subjected to a cleaning and editing process which corrected a few inherent errors. Missing values, uncompleted questionnaires and inadvertent omissions were detected and corrected. In some cases, about 13 self-administered questionnaires, respondents were contacted to rectify errors on their completed questionnaires.

5.4.4 DATA ANALYSIS

Once the questionnaires were coded the information was directed to a competent statistician to do the analysis. Statistical procedures, including descriptive statistics, which is used to describe the characteristics of the population (Zikmund & Babin, 2010:325) and inferential statistics which enable the researcher to make inferences and hence draw conclusions about the population based on the data obtained (Dzansi, 2004:197), were applied in the analysis of the results. Parametric statistical procedure (regression analysis) was used to allow the researcher to examine how effective social networks (internal/external) can predict the performance of ECFs. IBM Statistical Package for Social Sciences (Version 23) software was used for the statistical analysis and this analysed information is presented in Chapter 6 of the current study.

5.5 THE INSTRUMENT DESIGN

As indicated above a structured questionnaire was designed to capture mainly the elements of the operationalized concepts (social networks, entrepreneurship, innovation, competitiveness, and firm performance) applied in the study. In order to give identity to the questionnaires, a cover letter detailing the problem being investigated and the objectives of the study was attached to every questionnaire. The questionnaire was edited and refined for logical flow and convenience.

5.5.1 THE MEASUREMENT INSTRUMENT AND QUESTIONNAIRE ITEMS

The Likert scale is an instrument used to measure a cluster of attitudes toward an object of interest (Bryman & Bell, 2011:155). The Likert scale is the most frequently used type of summated rating scale and is based upon the assumption that each statement/item on the scale has equal attitudinal value, ‘importance’ or ‘weight’ in terms of reflecting an attitude towards the issue in question (Cooper & Schindler, 2011:298; Kumar, 2011:170; Zikmund et al., 2013:315). Participants are usually requested to indicate their attitude toward an object of interest by stating how strongly they agree or disagree with statements. Normally respondents have four, five, seven and even ten response alternatives to choose from. These alternatives may include: strongly disagree, disagree, uncertain, agree, and strongly agree. In this study, the

four-point scale was applied because the researcher felt the middle of the road response (“don’t know” or “neutral”) created room for respondents’ casual completion of the questionnaire without a carefully thought-out answer. The dimensions of the instrument were subjected to Cronbach’s Alpha coefficient test to determine the internal consistency and reliability. The current study’s questionnaire contained four sections as follows:

Section A: Demographics (Also measuring firm size)

This section of the questionnaire captured both the demographic profile of the entrepreneur and the size of the business. Scholars (Ghafoor & Igbal, 2007; Zindiye, 2008) argued that the classification of small businesses, and by extension ECFs, is based mainly on four major aspects, namely: (i) annual revenue, (ii) asset base and structure, (iii) number of employees and (iv) registration. Respondents were requested to provide information on the following demographic data:

- Role in the business (owner or owner/managers).
- Gender, age and ethnic origin/race.
- Total (estimated) asset value of the business.
- Number of persons employed by the business.
- Registration status and number of years the business has been in operation.
- Annual turnover of the business.
- Business related affiliations.

Section B: Social networking

Respondents were requested to indicate the degree to which they agree or disagree with various questions pertaining to this core construct of social capital. Social networking amongst ECFs, for the purpose of this study, was measured using the following individual (micro) level indicators adapted from Grootaert and Bastelaer’s (2002:22) categories:

- Social media activity (Facebook, YouTube, Blog, LinkedIn, etc.).

- Associational activity (horizontal, civil, political and mandatory/legal association).
- Number of networking activities and ties (the number of network ties engaged in with different actors as well as the interaction frequency between the focal firm and these actors, contact times, knowledge exchange, reciprocal activity). The number of ties or network range (heterogeneity) is an indication of the structural dimension of social capital, whereas the interaction frequency or intensity represents the relational dimension (Hansen, 1999:89; Watson, 2007:853).

Section C: Innovation

The measurement scale for this construct (innovation) as an independent variable of the current study was developed in conjunction with existing scales developed by the Hurt and Teigen (1997); Calantone, Cavisgil and Zhao (2002) and Keskin (2006). The construct (innovation) was measured based on the following dimensions, as revealed in Chapter 4 of the literature review:

- Product/service innovation.
- Process innovation.
- Marketing innovation.
- Organisational innovation.

Section D: Competitiveness

Using both Schmuck's (2008:199) and Gasa's (2012:72) measurement scales, the following measures of competitiveness, as a mediating variable in the current study, were used:

- Ability of ECFs' owners to manage their businesses effectively.
- Ability of owners to market the value proposition of the business.
- Considering and continuously implementing innovative strategies.
- Being conscious of the business environment.
- Having the strongest brand reputation in the market.
- A higher growth rate than competitors and the market as a whole.
- Higher-than-average net profit margin (compared with others in the same industry).

Section E: Firm performance

Firm performance as a dependent variable in the current study was measured from both a financial and non-financial perspective, as advised by Ali, Al-Sulaihi and Al-Gahtani (2012:126), with the following being key elements:

Financial performance

- Sales growth over the past 1-5 years.
- Increase in gross profit for the business over the past 1-5 years.
- Return on equity (ROE) over the past 1-5 years.
- Improved turnover over the last 1-5 years.
- Churn rate (number of employees resigned or left the business) over the last 1-5 years.

Non-financial performance

- Number of accidents reported over the past 1-5 years.
- Number of fatalities reported over the past 1-5 years.
- Customer retention rate over the past 1-5 years.
- Market efficiency over the past 1-5 years.
- Level of client satisfaction toward products and services.

5.5.2 PRE-TESTING OF THE INSTRUMENT

Pre-testing of the research instrument ensures that the survey items, as well as the entire instrument, function well (Bryman & Bell, 2011:262). The pre-testing of the instrument is administered to a sample from the target population in order to identify and correct weaknesses in the instrument (Cooper & Schindler, 2011:89). A group of six experienced and unemployed university students were trained and exposed to the questionnaire. The researcher and the six students then tested the questionnaire on 60 potential respondents (ECFs). The next step was to fine-tune the instrument by editing the content and layout for convenience and interpretability. The questionnaire was also submitted to both the promoter and the statistician to determine soundness and for final approval.

5.5.3 ADMINISTRATION OF THE INSTRUMENT

Although some questionnaires were self-administered (as literate respondents collected them at the CIDB's office and completed them), other questionnaires were administered to the not-so-literate respondents on a face-to-face basis with the help of the trained research assistants. The face-to-face approach was aimed at ensuring that the not-so-literate respondents and not their delegates, especially what is commonly known as 'Site Agents' in ECFs' contexts or representatives, completed the questionnaires to promote reliability of the outcomes.

5.5.4 PRACTICAL ISSUES IN ADMINISTERING THE RESEARCH INSTRUMENT

While validity and reliability are of great importance in ensuring the credibility of the study, it is equally important to consider the practicality of executing the measurement process (Blumberg et al., 2008:459; Cooper & Schindler, 2011:285). Researchers (Cooper & Schindler, 2011) identify the following three dimensions of practicality: *economy, convenience and interpretability.*

5.5.4.1 Economy

Cost in administering the questionnaire could be significant, especially if the questionnaire items are many. Yet more items yield more reliability. There is therefore a need to balance cost with reliability in practical terms. For the current study, the number of items was kept to a moderate size administered over four weeks. This was done to contain cost.

5.5.4.2 Convenience

A measurement instrument is convenient if it is easy to administer. Cooper and Schindler (2011:285) explain that a questionnaire which is clear, with detailed instructions, is easy to complete correctly, thereby yielding more accurate results. These authors also explain that a clear design and layout could also facilitate a more accurate completion for greater reliability. Close attention was paid to the instructions

that guided the completion of the questionnaire and the design and layout were revised several times until an acceptable quality was attained in this study.

5.5.4.3 Interpretability

Cooper and Schindler (2011:286) further explain that interpretability should be given attention if someone other than the designer must interpret the results and or purpose of the study. In order to overcome this practical problem, the researcher submitted a cover letter detailing the problem being investigated and the objectives of the study with every questionnaire.

5.6 CREDIBILITY OF THE RESEARCH

The credibility of the study and in particular of the measuring instrument is, to a large extent, dependent on the reliability and validity of the data (Zikmund et al., 2013:301). Research credibility is therefore crucial in determining the stability and quality of the data obtained. de Vos, Strydom, Fouche and Delport (2007:353) define credibility as the degree to which findings and, by implication, the methods that are used to generate the findings, can be trusted. Neuman (2000), as cited in De Vos et al. (2007:353), posited that credibility is the “key to provide readers with enough evidence so that they believe the recounted events and accept the interpretations as plausible”.

Validity and reliability are two research credibility techniques that have been employed in the current study and how the researcher ensured credibility of the measurement instrument is discussed briefly in the next section.

5.6.1 VALIDITY

Authors (Hair, Wolfinbarger, Ortinau, & Bush, 2008:356; Cooper & Schindler, 2011:280; Leedy & Ormrod, 2014:91) define validity as the degree to which a research instrument serves the purpose for which it was constructed. Two main forms of validity, namely, external and internal, are discerned from literature (Cooper & Schindler,

2011:280; Leedy & Ormrod, 2014:103). Whereas external validity concerns itself more with generalizability of research findings across persons, settings, times, et cetera, the internal validity of a research study is the extent to which its design and the data it yields allow the researcher to draw accurate conclusions about cause-and-effect and other relationships within the data (Cooper & Schindler, 2011; Leedy & Ormrod, 2014).

While both forms of validity were relevant to the current study, internal validity was more relevant and also being mindful that the current study was descriptive and exploratory in nature. The three broad forms of internal validity (content validity, criterion validity and construct validity) as offered by various authors (Cooper & Schindler, 2011:280; Zikmund et al., 2013:304; Leedy & Ormrod, 2014:91) are discussed next.

5.6.1.1 Ensuring content validity

Content validity of an instrument refers to the extent to which the measuring instrument adequately covers the domain of interest (Cooper & Schindler, 2011:281; Zikmund et al., 2013:304). An evaluation of content validity (face validity) begins with identifying the constituents of the concept being measured or the instrument being representative of the sample of the content area (domain) being measured (Leedy & Ormrod, 2010:92). For the current study, it was necessary to identify the elements from literature that constitute social networking, innovation, competitiveness and firm performance. The specific element of every construct (for social networking see section 2.9, innovation- section 4.9.1, competitiveness- section 4.9.2 and firm performance- section 4.9.3) under investigation was used to compile investigative questions in the questionnaire such that the questions sufficiently covered the whole spectrum of the concepts and constructs to comply with Siddiek's (2010:137) criteria for content validity.

5.6.1.2 Ensuring criterion validity

Criterion validity demonstrates the success of an instrument in either predicting or estimating outcomes including practicality of the measure (Bryman & Bell, 2011:165; Cooper & Schindler, 2011:281; Zikmund et al., 2013:304) or whether it is meaningfully related to some other measure of behaviour (Goodwin, 2010:132). Thus the measure should be able to predict with some degree of confidence the existence of the relationship(s) between two or more score on a future criterion. Since the current study is descriptive and claims no causality of variables, predictive validity of the questionnaire was therefore not an issue and was not pursued by the current study.

5.6.1.3 Ensuring construct validity

Construct validity refers to the degree to which the researcher measures what he/she intends to measure and to which proper identification of the independent and dependent variables were included in the investigation (Hair et al., 2008: 338). Goodwin (2010:132) contends that construct validity considers whether the test adequately measures some construct, and whether it connects directly with what is now a familiar concept.

Dzansi (2006:86) also contends that construct validity is the degree to which a test measures an intended hypothetical construct. To enable proper measurement of the various constructs of the study a detailed literature review was conducted and the constructs, social capital, entrepreneurship, innovation, competitiveness and firm performance, were operationally defined in Chapters 2;3 and 4 respectively. Also, as there are several existing instruments for measuring the various constructs under study, the measurement instrument used in the current study was largely developed from literature, with a few adjustments to the existing ones.

5.6.2 RELIABILITY

The reliability of a measurement instrument is determined by the extent to which it produces consistent results if applied at different times (Bryman & Bell, 2011:164; Cooper & Schindler, 2011:283; Kumar, 2011:181; Zikmund et al., 2013:305). Internal consistency of an instrument demonstrates the extent to which different indicators of a concept converge on a common meaning. It shows the extent of homogeneity among the different items of a multi-item measurement instrument. Values above 0.80 are deemed to possess excellent consistency, between 0.70 and 0.80 to be good; and between 0.60 and 0.70 are considered fair. Values below 0.60 are considered poor (Bryman & Bell, 2011:158; Cooper & Schindler, 2011:283; Zikmund et al., 2013:305). After testing the questionnaire amongst 60 ECFs, the researcher slightly adapted the phrasing of some questionnaire items in the instrument in order to improve the understanding of the items.

The current study used Cronbach's Alpha value to examine the internal consistency of the instrument. The questionnaire's reliability statistics for the constructs built in this study are summarised in Table 5.2 below. A Chronbach's Alpha value of at least 0.700 would indicate a reliable research instrument or a construct within the instrument. Table 5.2 shows that some constructs are not very reliable (Chronbach's Alpha statistic <0.700) while others are very reliable (Chronbach's Alpha statistic =0.700). The questionnaire as a whole was found to be highly reliable (Chronbach's Alpha statistic=0.904). The reliabilities indices of the constructs are shown and comments, indicating if such a construct is reliable, are also included in the table.

Table 5-2: Questionnaire reliability

Section	N	Number of questionnaire items	Chronbach's Alpha	Comment
Social network ties (*External networks*)	491	7	0.573	Moderate internal consistency
Social network ties (*Internal networks*)	511	6	0.645	Close to adequate internal consistency
External networking and innovation	507	4	0.755	Adequate internal consistency
Internal networking and product/service innovation	516	3	0.551	Moderate internal consistency
External networking and process innovation	517	3	0.797	High internal consistency
Internal networking and process innovation	517	3	0.259	Low internal consistency
External networking and marketing innovation	511	4	0.832	High internal consistency
Internal networking and marketing innovation	511	4	0.774	High internal consistency
External networking and organisational innovation	512	3	0.618	Close to adequate internal consistency
Internal networking and organisational innovation	509	5	0.719	Adequate internal consistency
Competitiveness	504	7	0.633	Close to adequate internal consistency
Financial performance	497	5	0.811	High internal consistency
Non-financial performance	503	5	0.956	High internal consistency
Overall questionnaire	**424**	**59**	**0.904**	High internal consistency

Table 5.2 above shows that the research tool has adequate reliability (thus have a high internal consistency rate). The results that follow from the data collected with its usage can, therefore, be relied upon to measure intended latent variables or factors with slight exception of some constructs which did not have adequate internal consistency.

5.7 POPULATION, SAMPLING FRAME AND SAMPLING

5.7.1 TARGET POPULATION

Target population is the totality of a collection of elements about which the researcher wishes to make some inferences and comprised of the correct list of members (Blumberg et al., 2008:239; Bryman & Bell, 2011:176; Cooper & Schindler, 2011:364; Zikmund et al., 2013:85). The target population is the group that is of interest to a researcher from which the sample is to be selected, and for which the researcher would like the results of the study to be generalized. The target population for this study consisted of all the emerging construction firms (ECFs) in the Free State that are active on the CIDB's database between grades 1-7.

5.7.2 SAMPLING FRAME

Sampling frame is the listing of all units in the population from which the sample is selected (Blumberg et al., 2008:239; Bryman & Bell, 2011:176; Cooper & Schindler, 2011:364). The sampling frame, also called the working population because these units will eventually provide units involved in the analysis, is often derived from an existing database (Blumberg et al., 2008:239; Zikmund et al., 2013:388). Establishing the sampling frame for the current study was easy since the CIDB controls a register of active contractors and this list, which is the only live database of active contractors, is updated continuously and is accurate.

5.7.3 SAMPLING

Sampling methods may be divided into two broad categories, namely probabilistic and non-probabilistic sampling (Bryman & Bell, 2007; Bhattacherjee, 2012; Zikmund et al., 2013). A probabilistic sample is one in which every element has a known non-zero probability of being selected (Blumberg et al., 2008:242; Bryman & Bell, 2007:179; Zikmund et al., 2013:396). Non-probabilistic samples rely on the judgment of the researcher; it is an arbitrary and subjective selection method where each member

does not have a known chance of being selected (Bryman & Bell, 2007:176; Blumberg et al., 2008:235; Zikmund et al., 2013:392).

Campbell and Swinscow (2009:375) argued that a carefully chosen sample is necessary if one wishes to obtain information that is representative of a particular population, so that accurate inferences can be drawn about the population that the sample represents. Wanger, Kawulich and Garner (2012:87) posited that in quantitative research it is important to select a sample that will best approximate the characteristics of the population for which inferences will be drawn. Generally, random probability sampling is the type of sampling that is used most often, and the current study adopted the simple random sampling approach by relying on the sample frame derived from the CIDB database. Using the unique CRS numbers, the CIDB assigns CRS numbers to each and every contractor, the researcher placed all the CRS numbers written on paper pieces in the hat and drew 800 of them to be visited.

5.7.4 SAMPLE SIZE

One of the most difficult aspects of research is to determine the correct sample size. How large a sample should be in probability sampling is a function of the variation in the population parameters (measurable characteristic) being investigated and the desired level of precision (Cooper & Schindler, 2011:374). Wanger, Kawulich and Garner (2012:87) stated that as the population size increases, the sample size that is required to achieve statistical accuracy decreases. This implies that the sample size will depend on the population size. Wanger et al. (2012:87) further argue that the required sample size for small population is approximately 30% of the population, while the required sample size for a large population is 10% of the population.

Ary, Jacob, Sorensen and Walker (2014:171), however, claim that the most important characteristic of a sample is its representivity and not necessarily its size. Two attributes of a good sample are accuracy and precision (Cooper & Schindler, 2011:367). Accuracy denotes the degree to which a sample is devoid of bias, while

precision demonstrates how closely the sample represents the population. To this end the current study ensured that an accurate and precise sample of ECFs from the sample frame of all ECFs in the Free State was selected. Using an online sample size calculator and the 10% rule of thumb by Wanger et al. (2012:87), a sample size of 800 was derived from a population frame of 6267 (ECFs active in the Free State between grades 1-7), with a confidence level set at 95%.

5.8 CONCLUSION

Despite Bacharach's (1990), as quoted in Dane (1991), strong position about people writing research, this chapter gave a strong account of the methodology that was adopted in conducting the current study. This was also necessary if an argument that positivism as a research paradigm that governs the current study was to be proven scientific. Cooper and Schindler (2011:11) state: "Writers usually treat the research study as a sequential process involving several clearly defined steps". Concurring with this view, Leedy and Ormrod (2014:2) further explain that research could be seen as a systematic process involving data collection, analysis and interpretation for the purpose of understanding a phenomenon of interest. Beyond an account of the methodology, the study also, in Chapter 6, gives a further detailed account of the presentation, analysis and interpretation of the data and our next chapter therefore focuses on this.

CHAPTER 6: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

"When a proportion of the business community distinguish themselves by their entrepreneurial flair, then the inference that such people must share some characteristics in common is not a surprising one"

(Chell, Haworth & Brearley, 1991)

6.1 INTRODUCTION

The primary objective of the literature review (Chapters 2, 3 and 4) was to determine the various acceptable ways in which the concepts of social networks, Small Medium Micro Enterprises (SMMEs)/Emerging Construction Firms (ECFs), innovation, competitiveness and firm performance, respectively, can be reliably and validly measured. Chapter 5, on the other hand, examined the research methodology applied in the study. A set of research questions were developed as a result of the extensive literature review in Chapters 2, 3 and 4 which then led to the design of both the theoretical and conceptual frameworks. It was as a result of this that the research instrument, a structured self-administered questionnaire, was prepared in order to guide the inquiry, ensuring that it leads to an appropriate treatment of the main problem identified for this study. Since the nature of research is helical, as pointed out by Leedy and Ormrod (2005:6), the data collected may or may not support the hypothesis; the questions may be either answered (partially or completely) or not answered at all, or new questions may arise.

This chapter addresses the presentation, analysis and interpretation of the data collected from the respondents. It seeks to draw conclusions to the arguments made in Chapter 1 and also to provide an answer to the main problem identified in the same chapter.

6.2 RESEARCH FINDINGS

Following a rigorous fieldwork exercise the research data is reported in the ensuing sections through both descriptive and inferential statistics respectively. Percentage

analysis was used as a decisional rule to arrive at conclusions on data gathered, with strongly disagree, disagree and neutral as measures on the 5-Point Likert scale being combined to mean one and the same thing.

6.2.1 DESCRIPTIVE STATISTICS

6.2.1.1 Response rate

This study targeted 800 ECFs in the Free State Province of South Africa. Of the 800 administered questionnaires 18 were not correctly filled out and some were partially completed and could, therefore, not be used. A total of 516, amounting to a 64.5% response rate, fully completed and correctly answered questionnaires were counted and subjected to analysis. According to Bryman and Bell (2011:236), a response rate below 50% is not acceptable, meaning that a response rate of 64.5% secured in this study is adequate for data analysis. Extant literature (OECD, 2004; Arko-Achemfuor, 2013) on SMMEs usually indicates low response rate and the 64.5% response rate is therefore considered high.

6.2.1 2. Characteristics of respondents

The results presented in Table 6.1 below show that 41.1% of the participants of the study were company owners, 37.8% were company managers and 21.1% were managing owners. Males made up the majority of the participants, with a percentage of 57.3 and females were fairly presented with a percentage of 42.7. The domination of firm owner/managers (78.9%) points to the size and survivalist orientation of most ECFs in South Africa, which necessitate the compression of the organisational structure through the infusion of multiple roles and responsibilities. This arrangement results in one or few nuclear functional units/portfolios and compression of hierarchical layers in organisational structures or reporting structure to cut on excessive overhead or company costs. A report on the equality, diversity and good practice for the construction sector commissioned by the Equality and Human Rights Commission in the UK affirms that ensuring good management practice in the small construction sector (e.g., through developing the appropriate organogram) for such is critical to realizing cost savings for such businesses (Peters, Allison & Katalytik, 2011).

Table 6-1: Characteristics of respondents

Personal details	Category	Frequency	Percentage
1. Role	Owner	212	41.1%
	Manager	195	37.8%
	Owner/managers	109	21.1%
2. Gender	Male	280	57.3%
	Female	209	42.7%
3. Age in years	16-25 years	98	19.3%
	26-35 years	163	32.1%
	36-45 years	174	34.3%
	46-55 years	63	12.4%
	Above 55 years	9	1.8%
4. Ethnic origin/race	Afrikaner	24	4.6%
	Coloured	30	5.8%
	Black (RSA)	392	75.8%
	Indian	46	8.9%
	Other (African)	15	2.9%
	Other (European)	9	1.7%
	Other (Asian)	1	0.2%
5. Educational status	No formal education	4	0.8%
	Primary school	38	7.3%
	Middle school	115	22.2%
	High school	237	45.8%
	Undergraduate	94	18.1%
	Postgraduate	30	5.8%

Table 6.1 above also shows that in terms of age the 36-45 age group was the most represented (34.3%), while the least represented age group was those above 55 years (1.8%). Combined, the most economically active population (i.e., 26-45 years) constitutes the majority (66.4%) of the owner/managers of ECFs. The implication of this is that there is a clear consistency between the economically active population and dominant ECFs. This finding is consistent with the finding that younger females tended to be less concerned about males' negative gender-defined attitudes towards them than were older women (English & Bowen, 2011), allowing the former to survive in a male-dominated profession.

In terms of race, blacks were the majority of the respondents (75.8%), followed by Indians (8.9%). ECFs are dominated by previously disadvantaged groups, who are intended/supposed to benefit from Broad Based-Black Economic Empowerment (BBBEE) policy. This finding supports Ntuli and Allopi's (2013) research on the capacity constraints facing civil engineering contractors in Kwazulu-Natal, South

Africa, in which the majority of the participants in their study were black Africans. The dominance of black Africans in this sector is also indicative of the deliberate efforts by government to promote black people's involvement in this sector.

Through black economic empowerment, the ANC government set a target of 25 per cent black- ownership by 2013 to transform the class and race composition of the construction companies (Cottle, 2015). The fact that approximately 80% of public sector tenders were awarded to large contractors in grades 7 to 9 of the Construction Industry Development Board (CIDB), implies that white capital is still the main beneficiary (Cottle, 2015) and suggests that the majority of ECFs have not transitioned into SMMEs. Although this cannot be construed as a finding in its own right, it points to the demographic representation of the sample itself, dominated by formerly marginalized groups (especially black Africans) in the South African mainstream economy, normally given preferential treatment by the preferential treatment policy on BBBEE. Most of the respondents in the study were high school graduates (45.8%), with those who finished in middle school coming up second (22.2%). Figures 6.1 to 6.5 below also show the demographic variables graphically.

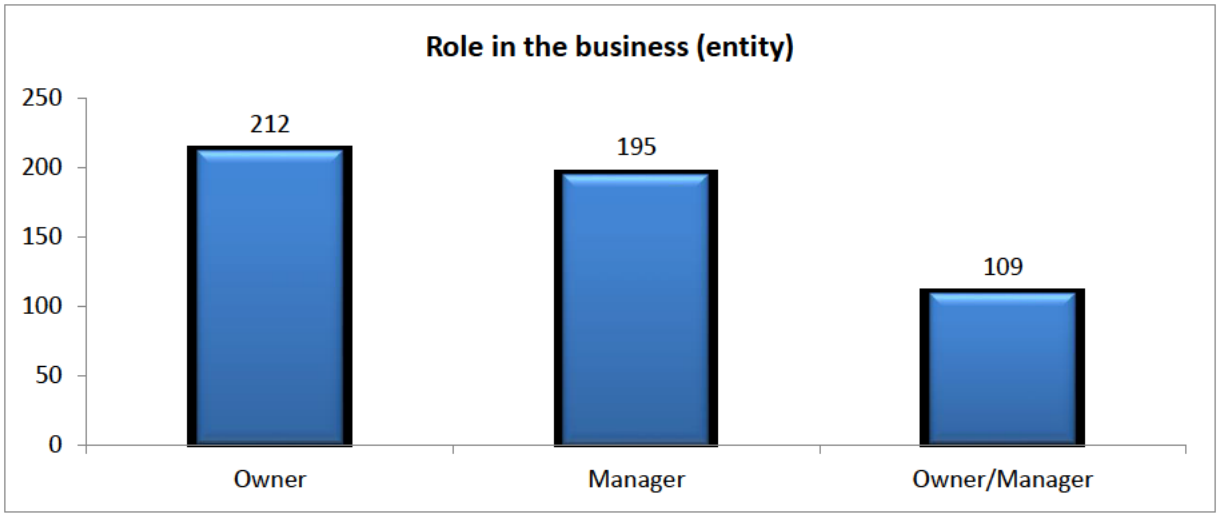


Figure 6-1: Role in the business (entity)

The domination in roles by firm owner (212), as indicated in Figure 6.1 above, points to the size and survivalist nature of most ECFs in South Africa. This domination in

roles, while it ensures savings in costs, ultimately necessitates the compression of the organisational structure and forces the owner to perform multiple roles and responsibilities. A report on the equality, diversity and good practices for the construction sector commissioned by the Equality and Human Rights Commission in the UK affirms that ensuring good management practice in the small construction sector (e.g., through developing the appropriate organogram) for such is critical to realizing cost savings for such businesses (Peters, Allison & Katalytik, 2011).

Figure 6.2 below reflects the gender distribution of the current study, which is almost (42.7% female vs. 57.3% males) modestly balanced. Gender does not necessarily imply sex or sexual orientation but rather the socially constructed "attributes and opportunities associated with being male and female and the socio-cultural relationships between women and men" (Hannan, 2001:1). The modestly balanced representation of males and females with regard to the ownership and participation in ECFs is similar to Makhura's (2012) consolidated breakdown of emerging contractors by gender, where 46% (female) and 54% (male) representation was reported.

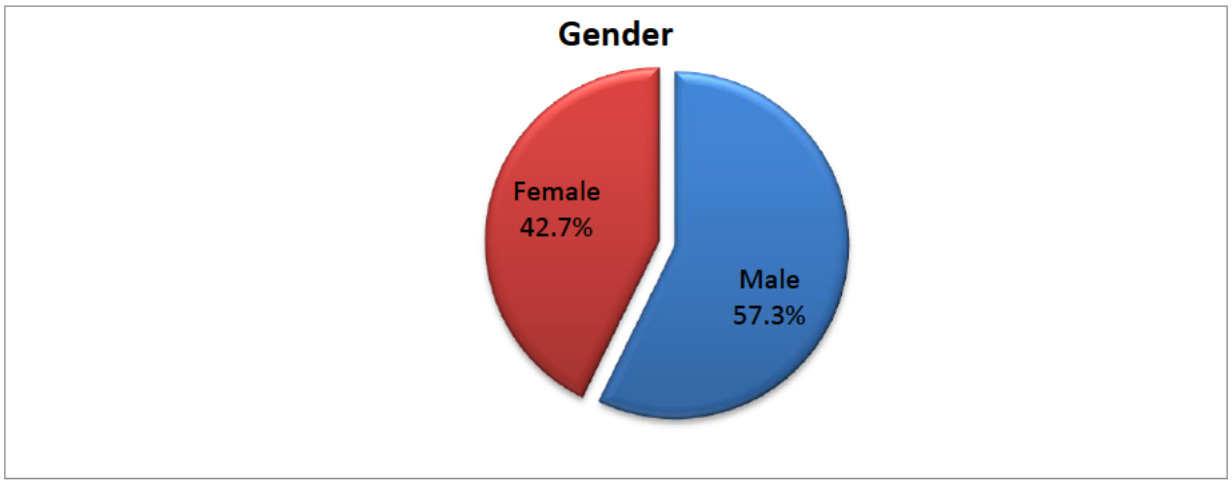


Figure 6-2: Gender distribution

However, such fairly balanced gender representation is surprising, as it contradicts the popular view that women are least represented in complex, sophisticated enterprises such as engineering, and construction particularly, due to their competing family responsibilities and limited exposure to STEM disciplines in their secondary and post-

secondary education. For example, Jahn's (2009) study into the discrimination against women in the construction industry in South Africa revealed that this industry is still male-dominated, with women contributing to only ten percent of the total workforce. The reasons include their negative perceptions by their male counterparts, the industry being considered a misfit for women by men and the pressure to prove their competencies in a male-dominated field (Jahn, 2009; English & Bowen, 2011).

Such a fairly balanced gender representation should also encourage South African Women in Construction (SAWIC) to do more in terms of their mandate. SAWIC strives to create a positive image of the industry and the role of women in the non-traditional field of construction. Overall, however, males were more represented than females, suggesting their greater involvement in the construction industry than females and perhaps pointing to a conservative and paternalistic orientation of the industry (Jahn, 2009; Sangweni, 2015), negative male gender attitudes, sexual harassment generally experienced at construction sites (English & Bowen, 2011) and the generally wider informal social networks of males in the industry.

This relative imbalance, however, does not cohere with the call to increase the employment of women in technical areas such as construction and infrastructure development, in which a blanket target of 50% women has presented difficulties for these sectors where two-thirds of workers are considered to be technical (Malan, 2014). Other factors that affect the participation and professional working life of female engineers in construction include discrimination, inhospitable construction culture, work-conflicts, glass ceiling, under-representation of women and untransformed cultural beliefs (Sangweni, 2015).

The normal distribution of the age distribution in Figure 6.3 below suggests the dominance of the middle age (26-45%) in the construction sector. The dominance of this middle age group, which constitutes about 66.4%, suggests that the economically active population is more susceptible to work in this sector due to the labour-intensive nature of the construction industry.

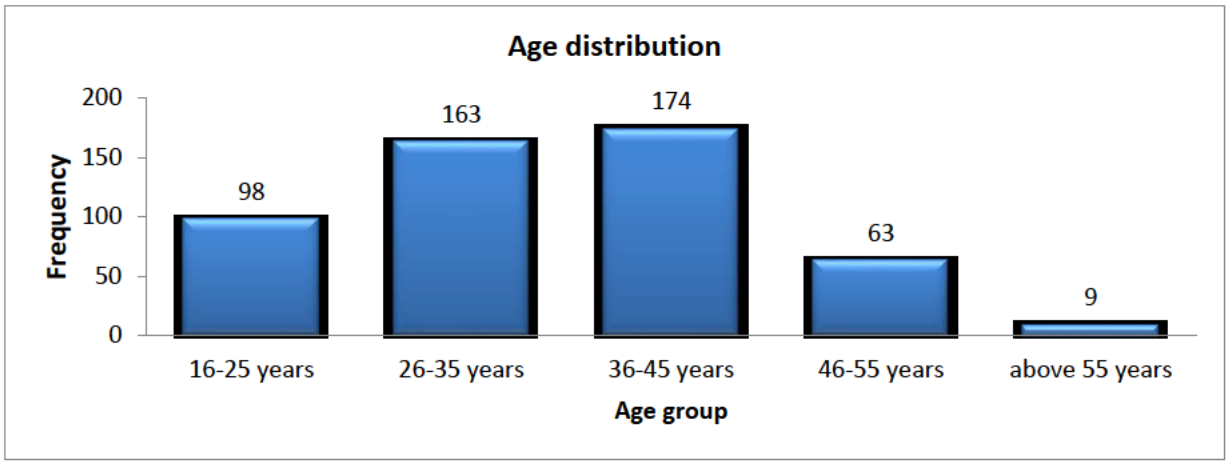


Figure 6-3: Age distribution

This finding supports Makhura's (2012) study of entrepreneurial competencies of the owner/managers of emerging small contractor companies in the construction industry, which found the majority of these participants (74%) to be between 20-49 years. The racial representation of owner/managers of ECFs in Figure 6.4 below supports prior research on the racial composition of emerging small and medium sized construction firms. As Cottle (2014) reports, of the current 72, 089 small and medium sized registered contractors, 64, 111 (88.93%) are black-owned.

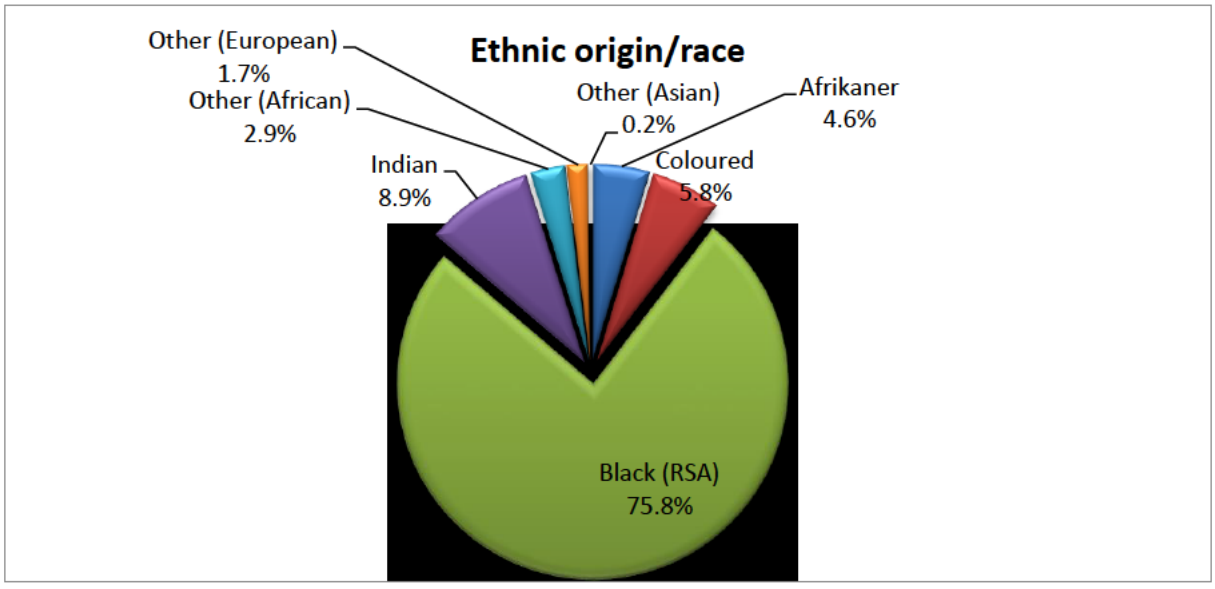


Figure 6-4: Race distribution

Essentially, the demographic profile of ECFs could be indicative of the practical application of the BBBEE and its preferential procurement policy, which in addition to promoting fairness, equity and transparency in procurement, has targeted these formerly marginalized groups. The dominance of black ownership of ECFs is indicative of "twenty years of active and sustained government intervention to transform the racial ownership patterns in the construction sector" (Cottle, 2014: 139). Perhaps the CIDB, in an effort to increase ECFs' participation in this industry and reduce large firms' monopoly, should align its grades with the BBBEE Code and encourage unbundling of big contracts into smaller manageable contracts.

Figure 6.5 below indicates that the majority of owner/managers (68%) had secondary education and were least represented in post-secondary schooling. The low educational attainment of ECFs' owner/managers confirms Ntuli and Allopi's (2013) finding that most (57.1%) civil engineering contractors in Kwazulu–Natal either had a certificate/diploma including grade 12, 38.1% standard 10/Grade 12/National Technical Certificate and very few (4.8%) had postgraduate degree.

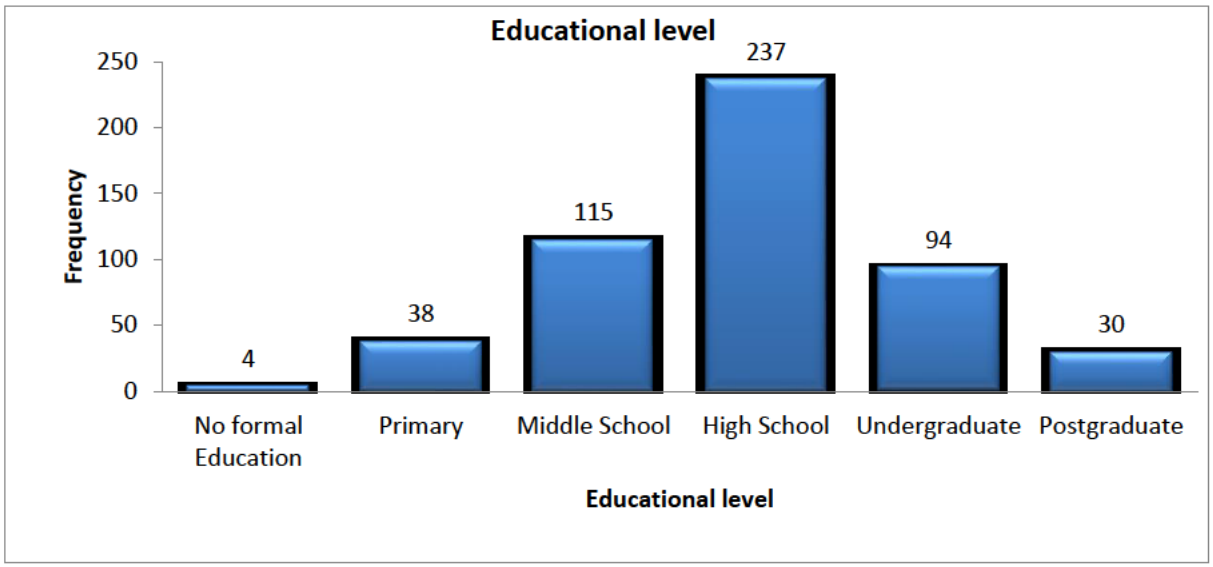


Figure 6-5: Educational level

The apartheid legacy seems to replicate itself in the construction sector where the more educated, who dominate the large construction businesses, can be contrasted with the less educated workforce that remain with ECFs mainly. The large JSE-listed

South African construction companies namely Murray and Roberts, Aveng, WBHO, Group 5 and Basil Read, with a regional presence on the African continent (Eskom, 2012; Construction Industry Development Board, 2015) comprise a workforce with higher education and more sophisticated training than that of the majority of ECFs.

The fact that the majority of participants in this sector have low levels of education and training supports Cottle's (2015) findings that the estimated composition of an onsite construction workforce is normally 50 per-cent unskilled, 26 per-cent semi-skilled, 19 per-cent skilled and 5 per-cent supervisory. This suggests their limited participation in more sophisticated, professional domains in this industry such as engineering, quantity surveying and project planning.

National Engineering Skills Survey conducted by Edu-Surveys and Media Positioning Solutions in 2014 reported a disproportionate racial representation of engineers registered on the Engineering Council of South Africa and university alumni: white (6585=65.4%) and black (2361=23.4%) in South Africa. Only 18.1% of owner/managers had attained undergraduate education, perhaps implying that tertiary education is not an option for a majority of the predominantly black emerging contractors.

6.2.1.3 Characteristics of businesses

Table 6.2 shows details of the businesses from which the participants were drawn. The majority of the businesses were close corporations (48.2%), followed by private companies with 29.2%.

Table 6-2: Characteristics of businesses

Company details	Category	Frequency	Percentage
6. Entity registration status	Sole Proprietor	29	5.6%
	Close Corporation (CC)	249	48.2%
	Private Company	151	29.2%
	Co-operative	61	11.8%
	Trust	26	5.0%
	Other	1	0.2%
7. Total number of employees currently employed	1-5	183	35.4%
	6-20	177	34.2%
	21-50	101	19.5%
	51-200	43	8.3%
	Above 200	13	2.5%
8.Total/estimated value of the assets	Up to R100 00	205	39.7%
	From R100 001 to 400 000	158	30.6%
	From R400 001 to 1 000 000	98	19.0%
	From 1 000 001 to 4 000 000	41	7.9%
	Above R4 000 001	15	2.9%
9. Number of years the company has been in operation	1-5 years	252	48.6%
	6-10 years	165	31.9%
	11-15 years	71	13.7%
	16-20 years	22	4.2%
	Over 20 years	8	1.5%
10. Total number of employees that have left the business	1-5 employees	254	48.9%
	6-10 employees	173	33.3%
	11-20 employees	61	11.8%
	21-30 employees	26	5.0%
	None	5	1.0%
11.The main engineering activity the company as engaged in	Civil (CE)	211	40.8%
	Building (GB)	188	36.4%
	Electrical (EE and EP)	36	7.0%
	Mechanical (ME)	35	6.8%
	Specialist Work (SO, SQ, etc.)	20	3.9%
	General	27	5.2%
11a.Given your response in 11 above what will you regard as your best grading?	Grade 1	311	60.5%
	Grade 2 to 4	151	29.4%
	Grade 5&6	44	8.6%
	Grade 7&8	8	1.6%
12. Is the business affiliated to CIDB?	Yes	476	94.1%
	No	30	5.9%
13. Other professional bodies besides CIBD	NHBRC	242	51.24%
	SAFCEC	61	12.9%
	Local Economic Forum and others	170	35.9%

Combined, these legal and institutional arrangements constituted about 77.4% of the total emerging construction establishments, indicating that these were the most preferred choice of legal forms, often due to their limited liability nature. Often, such institutions are legal entities and, have distinct financial records and business plans that increase their access to finance from banks and credibility in the eyes of national stakeholders/institutions. A feasibility study on the export potential of South Africa's contracting businesses conducted by CIDB in 2015 suggests that the well-established nature of the business, performance track record and quality service are critical to the internalization of emerging contractor business and accessing financial support from South African based private sector firms.

Most of the businesses had relatively few employees, with 69.6% having less than twenty employees. This finding is consistent with DTIs' (2008: xxvi) figures which indicated that in March 2007, 36% of businesses in South Africa were micro enterprises, 46% very small enterprises, 11% small, 4% medium and 3% large enterprises. This smallness seems to be one of defining characteristics of many predominantly black-owned ECFs in this sector due to constraints in budgets. Thwala and Phaladi (2009) observe that most ECFs' owners tend to manage their businesses themselves as a means of reducing operational costs. Since many SMMEs (and by extension ECFs) do not have acceptable credit histories and sufficient collateral to support the loans they make from banks (Agwa-Ejon & Mbohwa, 2015:522), the low capital base constrains their capacity to make large recruitments. Since black capital inputs tend to be quantitatively and qualitatively lower than white capital inputs, black enterprise cannot afford massive recruitments or acquire the most sophisticated technologies (Simpson & Yinger, 1985; Thwala & Phaladi, 2009). Because many ECFs, just like other SMMEs, depend on private financing (through personal saving, borrowing from friends, acquaintances and relatives), rotating credit associations (e.g., *stokvels* and informal associations), such firms cannot afford massive recruitments due to limited financing.

According to Table 6.2 above the majority of the businesses were small enterprises in terms of their asset capitalization, with almost 70% of them having assets valuation of

less than four hundred thousand rand. The small capital base seems to be consistent with the status of these firms, as the predominantly black-owned ECFs tend to be constrained financially. In its description of the challenges characterizing the construction sector, the Broad-Based Black Economic Empowerment Charter (2006) points out that the majority of SMMEs also suffer from low levels of financial sustainability and these enterprises have low penetration in capital and knowledge - intensive sectors. A majority of the ECFs' main engineering activities that they engaged in were restricted to lower grades (that is, 1-4) and were least represented at higher grades (that is, 5-7). This representation is supported by Windapo and Cattell's (2011) call for emerging black-owned contractors to grow and move towards higher grades on the CIBD Register of Contractors. These authors also highlight CIBD's concern about the contractor development capabilities of lower grade firms on its Register of Contractors (Windapo & Cattell, 2011).

A total of 81% of the businesses were in operation for less than 10 years, with only 1.5% of the companies having been in operation for more than 20 years. It can be inferred that a majority of these firms had recently transitioned from their first five years of existence to become more established businesses. This seems to counter the popular opinion that many SMMEs struggle to transit from being survivalist- oriented to become well-established businesses in terms of years of operation (Mofokeng, 2012; Ntuli & Allopi, 2013; Chadhliwa, 2015). Civil engineering companies (40.8%) were the most represented, closely followed by the building industry (36.4%). These two trades reflect the character of most firms surveyed, suggesting ECFs mainly engage in building and engineering.

6.2.1.4 Social networking ties

Social networking has two constructs under it, namely, external and internal networks. The summaries of the two types of networking ties are presented in Tables 6.3 and 6.4 below.

6.2.1.4.1 External social networking ties

There are seven questionnaire items that address external social networking ties; these are summarized in Table 6.3 below and ranked in Figure 6.6. From Table 6.3 it can be seen that 72.2 % (% agree/strongly agree) of the participants believed that their business has close ties with its customers and only 6.5 % did not agree. In the construction sector, where the functioning of the business, its productivity, and its survival are connected to the generation of external business, reliance on customers for business would be a normal expectation. This is further corroborated by Yao's (2000) study into the impact of social networks on innovation, which revealed that the firm's access to information and its acquisition in social network contexts, including its social network position, positively affects innovative output.

Table 6-3: External social networking ties

Social network ties (External networks)		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q14: Business has close ties with customers.	Count	11	23	110	253	121	72.2%	3.87	0.89	-0.011
	%	2.1%	4.4%	21.2%	48.8%	23.4%				
Q15: Business has close relationship with supply chain partners.	Count	38	51	196	191	38	44.6%	3.27	0.99	-0.006
	%	7.4%	9.9%	38.1%	37.2%	7.4%				
Q16: High level of collaboration between larger and well established construction businesses.	Count	20	19	176	243	56	58.2%	3.58	0.88	0.874
	%	3.9%	3.7%	34.2%	47.3%	10.9%				
Q17: Business alliance with business partners helps to respond promptly to market demand.	Count	17	26	51	303	115	81.6%	3.92	**0.91**	0.783
	%	3.3%	5.1%	10.0%	59.2%	22.5%				
Q18: Business recruits competent staff through advertising on professional social media.	Count	7	61	63	314	74	74.8%	3.75	0.89	0.404
	%	1.3%	11.8%	12.1%	60.5%	14.3%				
Q19: Business often relies on social media to initiate actions	Count	24	72	212	156	52	40.3%	3.27	0.98	0.753
	%	4.7%	14.0%	41.1%	30.2%	10.1%				
Q20: Take part in professional association meetings regularly.	Count	22	31	190	204	67	52.7%	3.51	0.94	0.702
	%	4.3%	6.0%	37.0%	39.7%	13.0%				
	Chronbach's Alpha							0.573		
	% of total variation accounted for by latent factor							37.14%		

Based on Table 6.3 above about 44.6% agree/strongly agree that the business has a close relationship with supply chain partners, and more than 50% were either neutral or in disagreement. The mixed reactions of ECFs' owner/managers suggest that their relations with suppliers were uncertain and non-static, pointing to variations in relations from solid to more random. This may also point to the diversity of suppliers of building and construction materials with almost identical pricing and quality standards, making the maintenance of strong ties with such suppliers necessary. This view supports Peters, Allison and Katalytik's (2011) finding on promoting and entrenching equality, good quality and diversity practices in the UK small construction businesses, in which a more diverse supply chain with better support for such small business was considered critical to the success of such businesses.

About 58.2% (% agree/strongly agree) believed that there was a high level of collaboration between larger and well-established construction businesses. The huge capital outlays, sophisticated skills and competence base required of most large construction projects render collaboration among large construction firms critical to the success of large engineering, infrastructural and construction projects that they participate in actively. Dawson's (2008) study into the relationship between an individual actors' position in a social network and his/her reported level of sense of community revealed that an individual's pre-existing external social network influences the type of collaborative support and information exchanges s/he requires and therefore, the degree of sense of community ultimately experienced. The centrality of large contractors in the conception, development and implementation of construction and engineering business involving large tenders possibly explains the volume of work or serviced-based collaborations they engage in. The relatively lukewarm response in the affirmative (58.2%), however, suggests that not so many large firms were part of this current study. Alternatively, this results signifies the prevalence of physical (e.g., limited resource base), contractual (e.g., the strict implementation and work schedules), cultural (e.g., difference in language) or temporal (e.g., time constraints) factors that often cause 'noise' in building projects, which interferes with collaboration and communication on construction sites and environments (Landin & Kindahl, 2013).

Collaboration, also commonly known as 'joint-venturing' amongst ECFs, is the bedrock for the large construction and engineering sector due to the sharp demands in the sector since the late 1970s, to reduce production and labour costs, the need to outsource highly skilled workforce and down-size workforce to fewer core site workers (Cottle, 2014). Such efficiency-driven and cost recovery measures naturally compel the firms to collaborate and engage with external stakeholders for those services they cannot efficiently provide and effectively deliver internally using their own material and human resource base. More so, the requirements for high competencies and skills are the reason why approximately 80% of large public sector construction tenders were awarded to large contractors in grades 7 to 9 (the high skills and competencies categories) in 2013, which are predominantly white- owned capital firms (Cottle, 2014).

Most of the participants were in agreement (81.6%) that business alliances, together with business partners, help to respond promptly to market demand. These two findings illustrate the value of business connections, collective engagements, and networking among established firms, especially in situations where they work on collaborative projects, to share their experience, trade-offs in resources and expertise. This finding supports Akiner and Yitmen's (2011) observation that the use of strategic business alliances in the construction industry has increased sharply over the last decade, as they are effective in maintaining the firm's superior competitive position in dynamic environments by providing access to external resources, by providing synergies and by fostering rapid learning and change. The increasing complexity of construction projects with regard to phasing and technology requires capabilities to liaise and cooperate with different specialized organisations and to deliver total and multidisciplinary services (Pietroforte, 1997; Akiner & Yitmen, 2011).

About 74.8% (% agree/strongly agree) are of the opinion that the businesses recruit competent staff through advertising on professional social media. Popularity of social media as platforms where the economically active population in South Africa visit frequently, and exchange messages and data, perhaps explains this finding. The result also demonstrates the recognition social media platforms have gained in emerging economies as credible sources of social information, relevant to assessing

the social conduct and integrity of prospective job applications normally missing on their resumes. Fleming (2015) argues that social media recruitment could be the game changer for small business due to its cost-effective provision of referrals, opportunities for increased visibility of job postings through 'share' 'retweet' or 'like' functionalities and the control that small businesses enjoys in representing and showcasing their activities to a wider audience. This supports previous studies where 34 percent of HR companies were reported to be using social networking sites as a marketing tool to recruit or contact applicants and 13 percent were using them as a screening tool (Davison, Maraist & Bing, 2011).

About 40.3% of respondents agreed/strongly agreed that the business often relies on social media to initiate actions but on the other hand, more were actually neutral, with 41.1%. The split of opinion about social media as a medium for initiating processes (such as contract negotiations, project initiation), perhaps indicates the lack of agreement on the extent to which business can depend on social media platforms for the conduct of its activities. Security of confidential company information, privacy issues, computer viruses and network reliability are some of the main concerns about social media platforms for hosting company information, marketing and advertising. Research reports that the skepticism of most companies about the use of social media for enhancing their business operations, communication and interactions stems from information security, the contested accuracy of information available on social networking sites, lower accessibility across the pool of potential applicants in emerging economies, thus compromising equity and diversity in recruitments, and concerns about privacy (Broughton, Foley, Ledermaier & Cox, 2013). Concerns about compromising company image, including potential litigation for negligent hiring in addition to negative commentary on the firm, are some of the concerns about using social media for recruitments (Giamela, 2016).

Figure 6.6 below shows that having business alliances with business partners in order to respond promptly to market demand is the most important external social network tie (81.6% agreed/ strongly agreed) and the reliance of the business on social media to initiate actions is the least important external social network tie (only 40.3% agreed/

strongly agreed). The need to establish firm alliances can be driven by a desire for ECFs to innovate, access new markets, overcome local market restrictions, raise entry barriers and share risk for mutual benefit (Stanek, 2004; Akiner & Yitmen, 2011). The need for organisations to enter into alliances (commonly known as joint-ventures) could also be tied to the project based, market driven and international nature of the construction business, which requires close ties with other local/foreign construction firms, building associations, construction policy regulators and suppliers. Partnerships and/or joint ventures especially involving the construction sector and public agencies help address the common faults that are associated with public-sector procurement, such as high construction costs, construction overruns, operational inefficiencies, poor design, and community dissatisfaction (Mustafa, 1999; Alinaitwe & Ayesiga, 2013).

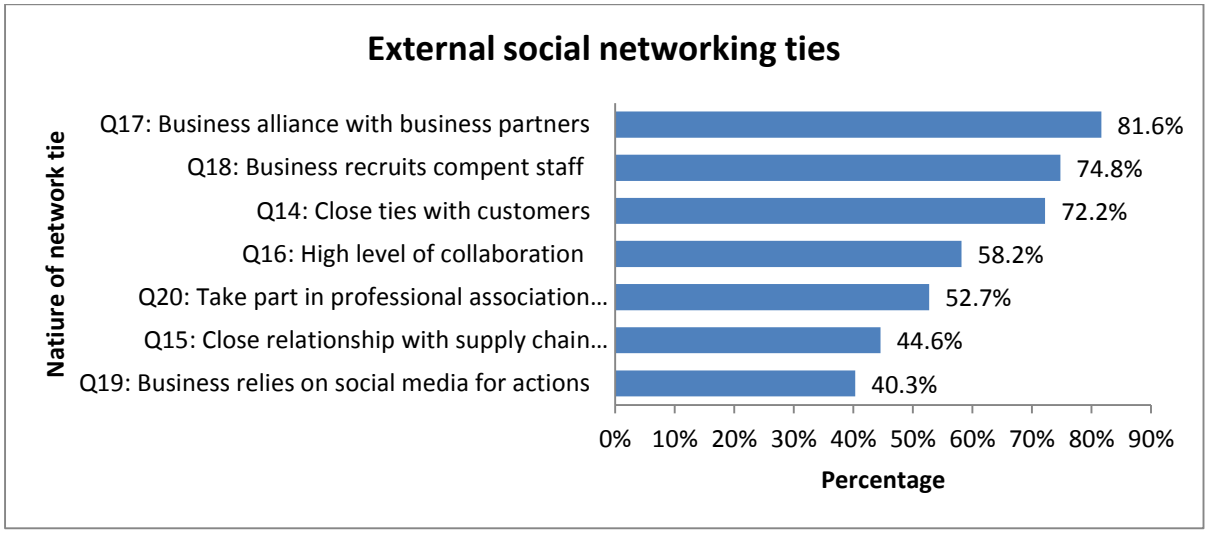


Figure 6-6: External social networking ties

Establishing alliances is also core to the operations of construction firms due to the complex project organisations of construction activities, increased international character of their labour force and diversity of their workforce background and skills (Landin & Kindahl, 2013), which are critical to raising the social value of such firms. More so, the partnerships of the ECFs which can also take the form of private public partnerships, personal contacts, informal networks and social ties, may serve as cost reduction and risk sharing (or risk externalization) mechanisms, especially for these survivalist firms where project success is the foundation for firm survival. Partnerships are therefore, critical to reducing the costs of construction projects, increasing construction and operation efficiencies, promoting infrastructure development, and

improving service quality by incorporating the private sector's knowledge, expertise and capital (Yuan et al., 2009).

As a measure of external social networking ties, the principal component derived from the correlation matrix of the items that make up the construct is used. Principal components maximize the usage of the information (expressed in terms of variation) contained in the items that make up the construct, as opposed to an ordinary average, which can be very wasteful of the information in the data since it does not consider the correlations between the items that make up a construct. The principal components (latent factor) results presented in Table 6.3 show that questions 16 (High level of collaboration between larger and well-established construction businesses) with the highest latent factor coefficient of 0.874, is the dominant determinant of the overall measure of external social networking ties. The high sophistication of large engineering and construction projects in terms of capital outlays, machinery, experience and expertise of manpower all require greater collaboration among the established construction firms for such projects to be implemented successfully. Collaboration is reported to extend and augment the capability of high-skill workers, increase productivity by lowering the barriers between functional silos, as well as redraw the boundaries of the construction firm to allow additional knowledge and expertise in extended network enterprises (Chui et al., 2012).

The overall measure of external social networking ties is calculated using principal component analysis as:

$$\textbf{ESNT}=-0.011*\textbf{Q14}+ -0.006*\textbf{Q15} + 0.874*\textbf{Q16} + 0.783*\textbf{Q17}+ 0.404*\textbf{Q18}+ 0.753*\textbf{Q19}+ 0.702*\textbf{Q20}$$

This overall measure of external social networking ties will be used for the inferential part of the study and it will represent a summary variable of all the seven questionnaire items together.

6.2.1.4.2 Internal social networking ties

The majority of the study participants, according to Table 6.4 below, agrees or strongly agrees that employees have positive internal networks.

Table 6-4: Internal social networking ties

Social network ties (Internal networks)		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	%Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q21: Employees share ideas among themselves in relation to business operations	Count	1	27	201	158	131	55.8%	3.75	0.90	0.701
	%	0.2%	5.2%	38.8%	30.5%	25.3%				
Q22: Collaboration among employees yields better ways of undertaking construction work	Count	2	5	54	344	112	88.2%	4.08	0.62	0.758
	%	0.4%	1.0%	10.4%	66.5%	21.7%				
Q23: Employees pay important attention to developing internal skills of other colleagues	Count	1	13	54	365	83	86.8%	4.00	0.62	0.592
	%	0.2%	2.5%	10.5%	70.7%	16.1%				
Q24: I inform a colleague of the outcome of a problem he or she has helped me resolve	Count	4	9	25	322	158	92.7%	4.20	0.67	0.571
	%	0.8%	1.7%	4.8%	62.2%	30.5%				
Q25: Effective mentorship practice exist within the business	Count	4	16	21	351	128	92.1%	4.12	0.68	0.694
	%	0.8%	3.1%	4.0%	67.5%	24.6%				
Q26: I rely on colleagues for clarification on instructions that are not clearly stated	Count	3	36	20	329	132	88.7%	4.06	0.79	0.297
	%	0.6%	6.9%	3.8%	63.3%	25.4%				
	Chronbach's Alpha							0.645		
	% of total variation accounted for by latent factor							38.53%		

Accordingly, 55.8% agree/strongly agree that the employees share ideas among themselves in relation to business operations. In view of the strong project focus, tight work schedules and deadlines and internal workforce mobility in the engineering, architecture, planning, surveying and specialist trades (i.e., the emerging construction industry/sector) (Peters, Allison & Katalytik, 2011), which require interaction and sharing of work-related ideas, this lukewarm response is surprising. Perhaps, this is indicative of small firm employees' difficulty in sharing ideas, especially if performance-related incentives are instituted based on the uniqueness of talent of that individual employee to the business. Alternatively, such reluctance to share information,

perhaps, points to the difficulty of employees distinguishing between generic project information that can be shared universally and confidential value-adding/creating company information that improves company competitiveness, which when divulged may compromise the company's competitive advantage. As the International Integrated Reporting Committee (IIRC) (2011), observes with reference to capacity constraints of small firms, commercial confidentiality, which it describes as the incapacity of organisational employees to distinguish between information not currently subject to mandatory disclosure requirements in their Integrated Sustainability Reports and their desire to avoid disclosing competitive information.

Most of the participants (88.2%) think that collaboration among employees yields better ways of undertaking construction work. This is result is unsurprising given the nature of the construction business, which demands considerable collaborative work among employees for projects to be planned, designed, and executed successfully. In a study that examined the role of transnational family networks in business development, Bagwell (2008) established that the presence of innovative and well-educated members within the entrepreneurs' "strong-tie" network appeared to encourage more successful collaborations in business development and diversification. The finding about collaboration contradicts the finding on limited sharing of information reported above, suggesting the need to distinguish between close engagements enabled or demanded by the nature of the profession (collaboration) and the agency-informed actions of the individual toward the other (information sharing).

Table 6.4 above indicates that most (86.8%) participants affirmed that employees assist in developing skills of fellow employees. The skewedness of the skills base in the construction sector, with a majority of casual labourers being semi-skilled or unskilled, may in itself necessitate construction employees to take a proactive role in developing peers' skills. As Cottle (2014) observes, the estimated composition of site construction workforce is normally 50% unskilled, 26% semi-skilled, 19% skilled and 5% supervisory, which explains the construction industry's dependence on outsourcing skilled people to balance the skills base demographics. The demands for

internal skills development, therefore, could reflect this skewedness rather than the willingness of ECFs to broaden the skill base of its workforce.

About 92.1% positively think that effective mentorship practice exists within the business. Such a finding position ECFs as firms with strong internal support systems for supporting the mentoring and development of construction and engineering skills. This finding is inconsistent with Ofori (1991) and Kandie, Ngassam, and Dlungwana's (2009) findings on the quality of service delivered by South Africa's small contractors, where the ineffectiveness and drawbacks (such as lack of financial resources for training contractors, poor construction procurement systems and lack of management capacity and resources to equip managers to operate their business enterprises) of existing mentoring programes towards skills development were emphasized. The current findings, however, support Lekarapa and Root's (2014) study into the efficacy of informal social networks among construction artisans in the Western Cape, which demonstrated that while membership in such networks often forms the basis for mentorship, knowledge sharing and skills transfer, which are advantageous to the members of these networks, the same informal social networks can act as barriers to skills acquisition for those outside these networks who do not already possess craft skills.

Accordingly, 88.7% (% agree/strongly agree) feel they can rely on colleagues for clarification on instructions that are not clearly stated. Since construction and engineering work involves the conversion of complex engineering drawings and maps into buildings (low rise and high rise structures) and engineering structures such as dams, bridges, sewerage and highway systems, the clarification of instructions on requirements and specification naturally becomes inevitable. The University of South Africa Occupational Health and Safety Specifications for the Projects and Building/Electrical/Mechanical Maintenance (n.d.) stipulates the importance of sharing construction project information and design changes agreed between client and designers, including communicating hazardous/dangerous conditions/situations among principal contractors, contractors and construction project staff.

In terms of Figure 6.7 below, most of the internal network ties are considered important by most respondents, as the percentages agreeing or strongly agreeing are mostly above 80%. The dependence of ECFs on informal social ties and informal networks explains this finding. For instance, a study conducted by Lekarapa (2013) into the informal social networks on three construction sites in an ethnically diverse area, to explore how these give rise to economic exclusion, revealed that the primary access to information on work opportunities was through the informal social networks formed among construction artisans, foremen and construction managers. The same study also found that artisans on these sites were mostly friends and neighbours with similar ethnic backgrounds, strongly suggesting that social relations facilitated the transfer of information around work opportunities (Lekarapa, 2013).

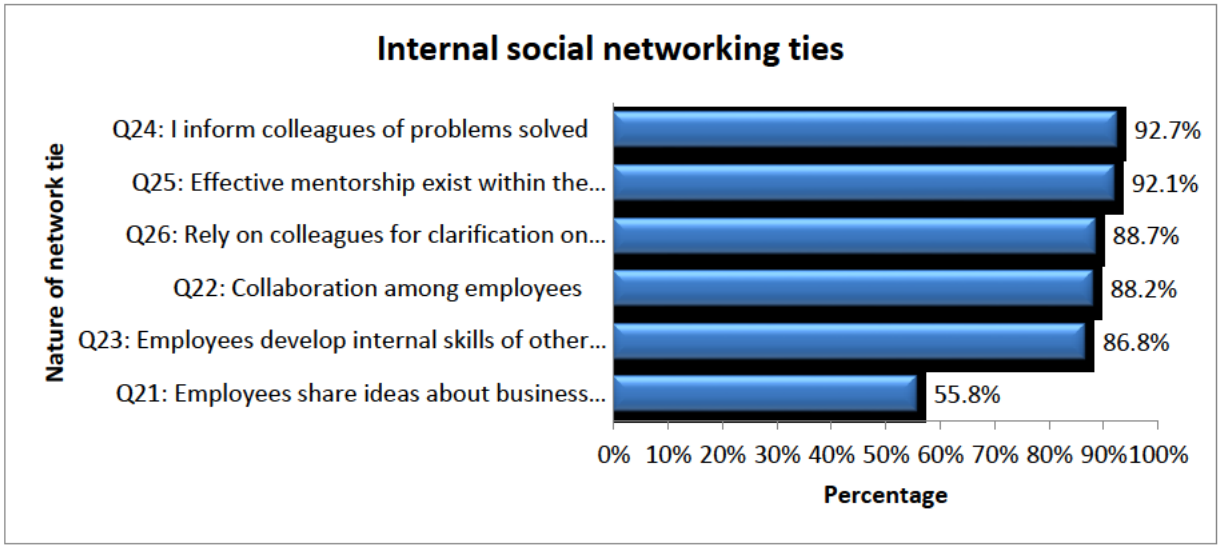


Figure 6-7: Internal social networking ties

Figure 6.7 further depicts that about 55.8% agree or strongly agree with the fact that employees share ideas among themselves in relation to business operations. Creative sharing practices are considered pivotal to empowering individuals through fostering the development of technical and literacy skills (Notley & Tacchi, 2005; Collin, Rahilly, Richardson & Third, 2011). The low culture of sharing in the construction sector, however, could mean that a "lone wolf mentality" (Benson, 2006; Beadling, 2015), in which individual employees feel that they can successfully perform construction work-related tasks with limited support from peers, seems to dominate this construction profession.

By comparing the percentages presented in Figures 6.6 and 6.7 above, one would be led to believe that internal network ties are given more weight over external ones. From this finding the inference is that, based on Resource Based View (RBV), ECFs' attempt to prioritize and optimize their internal capabilities and capacities such as their unique social capital to maximize their competitive advantage and growth potential before they consider external resources. A resource is "anything which could be thought of as a strength or weakness of a given firm and include[s] tangible and intangible assets used by an organisation to develop a product or service" (Ehlers & Lazenby, 2011:115). Drawing on the RBV, Grant (1991) and Ferreira, Azevedo and Ortiz (2011) observe that the resources and capabilities (such as social capital and internal networking) are the internal strengths and competencies that firms can use to formulate and implement their strategies as well as to promote the growth of the small firms. By the same token Acosta, Colomo-Palacios and Loukis (2011) report that the interaction, including the complementarity of those resources that trigger internal social networks ties (especially Internet resources and eBusiness capabilities), is a critical source of firm value.

The overall measure of internal social networking ties is calculated using principal component analysis as:

ISNT= 0.701*__Q21__+ 0.758*__Q22__ + 0.592*__Q23__ + 0.571*__Q24__+ 0.694*__Q25__+ 0.297*__Q26__

As with the external social networking ties, the overall measure of internal social networking ties will represent a summary variable of all six questionnaire items together.

6.2.1.5 Innovation in businesses

Networking and innovation results are presented in this section, and there are eight constructs that measure networking and innovation under product/service innovation, process innovation, marketing innovation and organisational innovation. The conceptual framework guiding this study shows that innovation is made up of three

constructs, namely, product, service and process innovation while the channels through which innovation can be carried out are external and internal networking. This section reports on innovation through these two channels.

6.2.1.5.1 Innovation through external networks

PRODUCT/SERVICE INNOVATION

A product/service innovation refers to the introduction of a good/service that is new or significantly improved regarding its characteristics or intended uses (OECD, 2006). Product/service innovation is a difficult process, driven by advanced technologies, changing customer needs, shortening product life cycles and increased global competition.

As shown in Table 6.5 below, the majority of the participants appreciate the importance of external networking for product/service innovation, with 74% (agree/strongly agree) asserting that new products are developed by businesses through collaborating with other industry players. This finding supports Damayanti's (2012) study into the role of informal actor networks (especially those of pedicab drivers in Yogyakarta) on promoting innovation in the tourism sector, in which the formation, close engagement and sustainability of informal sector networks was found to foster service innovation through improving physical infrastructure and the capacity of pedicab drivers to serve the tourists. Through external networks created via unionization, the pedicab drivers have optimized their performance capacity by sharing information about tourism issues and urban transport's rules and discussing strategies to improve their physical appearance to tourists.

The findings on the importance of external networks in shaping product/service innovation are also supported by Braam and Borghans' (2009) study, which examined the influence of the social networks of the board of directors on innovative use of the Balanced Scorecard (BSC) practices of their firms. Drawing on data from 149

companies listed on the Dutch Stock Exchange, their results suggest that directors' experience with BSC practices on other boards influenced their innovative use of their firm's BSC. More so, firms with board members who had experience with BSC practices in other firms they are associated with, had a higher probability of using this strategic performance measurement tool in their own firm too (Braam & Borghans, 2009).

Table 6-5: External networking and product/service innovation

External networking and innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q27: Business develops new products/services by collaborating with others in the industry	Count	18	64	53	358	26	74.0%	3.60	0.89	0.640
	%	3.5%	12.3%	10.2%	69.0%	5.0%				
Q28: Information on innovation in the business is influenced by collaboration	Count	3	46	157	225	85	60.1%	3.66	88	0.853
	%	0.6%	8.9%	30.4%	43.6%	16.5%				
Q29: Business adds new features to existing products/services through collaboration	Count	4	38	19	327	130	88.2%	4.04	0.81	0.904
	%	0.8%	7.3%	3.7%	63.1%	25.1%				
Q30: Business continue to collaborate with others in the industry to create new products/services	Count	2	15	33	353	110	90.3%	4.08	0.65	0.631
	%	0.4%	2.9%	6.4%	68.8%	21.4%				
	Chronbach's Alpha							0.755		
	% of total variation accounted for by latent factor							58.82%		

In terms of Table 6.5 the majority of the participants (60.1%) also believe that information on innovation in business is influenced by collaboration and 88.2% of participants strongly agree that through collaboration new features are added to existing products. The mean of the four items that make up this construct are all above 3.5, which indicates general agreement on the importance of these external networking and innovation practices. The importance of collaboration for effective innovation is supported by evidence from literature. For instance, Carrasco-Hernández and Jiménez-Jiménez's (2013) study of whether the sharing of knowledge among 282 Spanish family businesses could promote innovation revealed that family collaborations may foster the exploitation of knowledge, which triggers innovation.

Their study reports that social capital, especially active collaborative connections between family members, had a positive relationship with product innovation and enabled companies to generate new innovations. Similarly, the study's finding corroborates Houghton, Smith and Hood's (2009) claim that there is a direct link between a single firm's social resources (in particular the firm's collaborative involvement in external networks) and the firm's strategic complexity, such as its innovative capabilities. The current study's finding also mirrors previous findings on the distinct connection between the volume of collaborative relationships of a firm and its entrepreneurial processes, especially innovation capabilities (Shan, Walker & Kogut, 1994; Elfring & Hulsink, 2007).

Figure 6.8 below, shows that collaboration to create new products (question 30) is the most important external networking practice geared towards innovation, as agreed by most respondents (90.3%). It can be deduced from this that collaborative knowledge sharing, team building and task-focused engagement are critical to the development of new products and services. This view solidifies Clark and Smith's (2002) study into the influence of top management team (TMT) group process and collaborative network methods on 72 TMT's value creation. The TMT served as an important boundary-spanning mechanism that facilitated organisation-level innovation by accessing, processing, and distributing information.

Clark and Smith's (2002) findings illustrated that the social integration of these teams and their external and internal networks were associated with increased organisation-level innovation. Although the findings were more at organisational innovation level than product innovation level, it can be argued that the filtering through and saturation of system level innovation within the organisation is associated with innovations at the product level as it is systems and processes within organisations that make product and service innovations possible. In a study that examined how forming social capital based collaborations might create an innovative environment within a regional strategic network (RSN), Eklinder-Frick, Eriksson and Lars Hallén (2012) established that the centrality and collaboration of actors in a social network not only created

substantial benefits for technology brokering but also enabled innovation during project implementation.

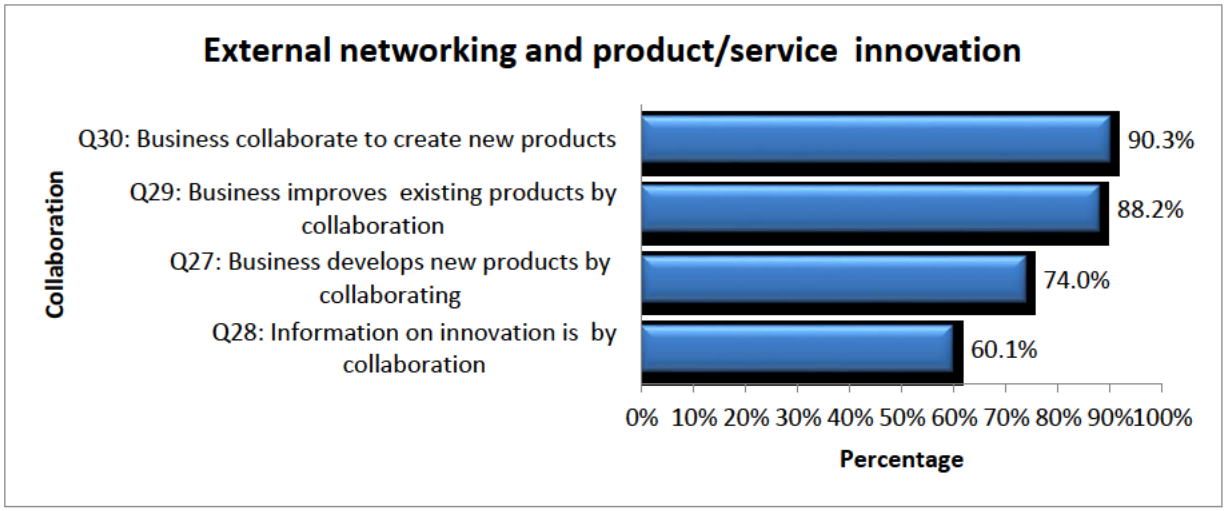


Figure 6-8: External networking and product/service innovation

The overall measure of external networking and product/service innovation is calculated using the latent factor in Table 6.5 above as:

ENPSI= 0.640***Q27**+ 0.853***Q28** + 0.904***Q29** + 0.631***Q30.**

PROCESS INNOVATION

Every process needs to be continually updated, improved or replaced altogether in order to keep pace with current trends and standards. This, the current study contends, must come through networking and innovation. This section looks at process innovation and external networking. Table 6.6 below shows that more than half of the participants (57.8%) believed that their businesses use external collaboration to develop and improve, whereas 31.2% were neutral. The lack of overwhelming consensus on the contribution of external networking, especially external collaboration, on process innovation probably resides in the variability of the use of external networks, depending on firm size, location and network density. This interpretation coheres well with literature; for example, Ouimet, Landry and Amara (2004) found firms in particular industrial clusters to be differentially positioned in terms

of fostering radical innovations, depending on their degree, size and *betweenness* (locational density) of their external networks.

Table 6-6: External networking and process innovation

External networking and process innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q34: Business uses external collaboration to develop and improve	Count	12	45	162	156	144	57.8%	3.72	1.03	0.839
	%	2.3%	8.7%	31.2%	30.1%	27.7%				
Q35: Business believes new ways of doing things is a way of achieving efficiency	Count	2	7	147	247	116	69.9%	3.90	0.77	0.864
	%	0.4%	1.3%	28.3%	47.6%	22.4%				
Q36: Collaborating with others is critical to business success	Count	2	11	119	197	190	74.6%	4.08	0.84	0.846
	%	0.4%	2.1%	22.9%	38.0%	36.6%				
	Chronbach's Alpha							0.797		
	% of total variation accounted for by latent factor							72.25%		

Although founded on entrepreneurial activity rather than process innovation per se, Kacperczyk's (2008) study suggests that the firm's internal and external venture formation (perhaps including firms' internal commitments such as product innovation) is affected by the spatial proximity of network members, and is even greater within same-gender school ties. This implies that the greater the network density of ECFs, the higher its owner's/managers' capacity to create another internal or external venture, which could be founded on developing and supplying a different service or product.

In their study that explored the impact of social capital on the performance of firms listed on the Ghana Club 100, Ofori and Sackey (2010) highlight that social capital (in particular external networking and collaboration of firms) is critical to the product inventiveness and service responsiveness of firms in the contemporary fast-paced business world. Similarly, as Dato-on, Banerjee and Saha's (2015) research affirms,

small firms can use their external networks and relationships to develop product innovation and to overcome the constraints in generating innovativeness.

Figure 6.9 below indicates that 69.9% agree/strongly agree that their businesses believe that new ways of doing things is a way of achieving efficiency. Acquaah's (2008) examination of the social capital sources of Ghanaian SMMEs reports that personal and social connections provide a pervasive creative means of obtaining resources for the conduct of business activities, which improves efficiency of business processes. For instance, through social capital embedded in new creative relationships with other SMMEs' managers, customers and suppliers, SMMEs can derive efficiency benefits from innovative engagements.

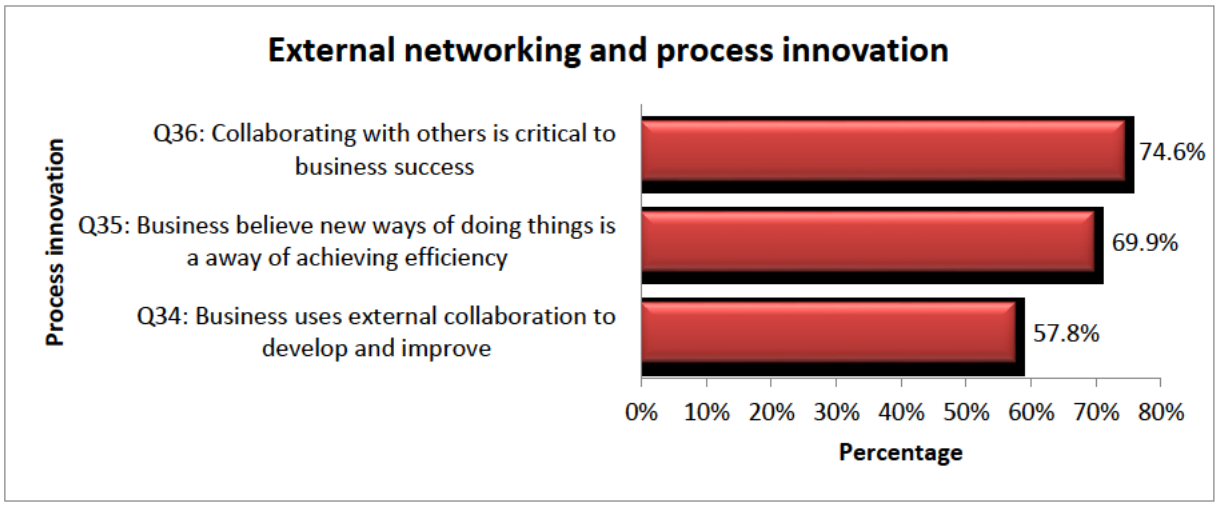


Figure 6-9: External networking and process innovation

Customers can provide new information about preferences in the market on which SMEs could focus on their production and marketing of their products or services. Suppliers can provide new quality raw material, financial resources and credit services, and other services that can help SMEs improve their efficiency and operational effectiveness (Acquaah, 2008). Other literature supports the view that innovation, a product of collective problem-solving, can lead to the development of new ideas (Nahapiet & Ghoshal, 1998; Fu, 2004; Valmohammadi, 2012), which trigger more efficient production processes as workers are encouraged or even authorized to

make decisions on their own, rather than referring them up the managerial hierarchy or using purely formal coordination techniques (Ofori & Sackey, 2010).

About 74.6% of the participants in Figure 6.9 above think that collaborating with others is critical to business success. This view supports the view that collaboration in task accomplishment or in engagements with external stakeholders breed organisational success. In an explanatory case study, based on semi-structured interviews with two Norwegian companies with an innovation reputation Egeland and Birkeland (2012) demonstrated how heavily networked founders' trustful collaboration toward each other and toward external actors influenced their organisational culture, which became an important asset for successful expansion of their business. The same study found these companies' collaborated with a closely linked community of operators, service providers and suppliers to develop new innovative solutions. The current study's finding is supported by Liang, Huang, Lu and Wang's (2015) finding on effects of social capital on members' participation in collective activities and on the economic performance of farmer cooperatives. Their study reported a positive relationship between collective, collaborative orientation (dimensions of social capital) and members' participation in training and general meetings.

The overall measure of external networking and process innovation is calculated using the latent factor in Table 6.6 above as:

$$\textbf{ENPRI} = 0.839*\textbf{Q34} + 0.864*\textbf{Q35} + 0.846*\textbf{Q36}$$

MARKETING INNOVATION

In order to market products and build capacity for growth, a business needs to understand the trends in the marketing environment and this calls for marketing innovation, which can come through networking.

As presented in Table 6.7 below, 89.3% agree/strongly agree that the businesses often develop new marketing strategies through collaboration, while only 6.6% disagree/strongly disagree. This finding contradicts April and Reddy's (2015) observation that SMEs' managers tend to focus on decisions relating to everyday questions and may neglect long-term strategic objectives and activities, such as analysing market trends and developing new marketing capabilities to enter new markets. Perhaps, the difference in terms of the industrial sector, in particular their focus on the clothing industry, and this study's preoccupation with ECFs explains this- the building profession is more heavily relations dominated (e.g., building trade associations, regulators, building suppliers, contractors, etc.) than SMMEs' exporters, who were the respondents in April and Reddy's (2015) study.

Table 6-7: External networking and marketing innovation

External networking and marketing innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q40: The business often develop new marketing strategies through collaboration	Count	6	28	21	279	182	89.3%	4.17	0.83	0.779
	%	1.2%	5.4%	4.1%	54.1%	35.3%				
Q41: Business uses external collaboration for marketing innovation	Count	5	13	10	314	176	94.6%	4.24	0.70	0.739
	%	1.0%	2.5%	1.9%	60.6%	34.0%				
Q42: Business introduce new products/services in cooperation with others to remain competitive	Count	10	68	168	146	126	52.5%	3.60	1.05	0.873
	%	1.9%	13.1%	32.4%	28.2%	24.3%				
Q43: Business regularly develop new promotional activities to boost sales volume	Count	7	62	138	204	106	60.0%	3.66	0.98	0.870
	%	1.4%	12.0%	26.7%	39.5%	20.5%				
	Chronbach's Alpha							0.832		
	% of total variation accounted for by latent factor							66.81%		

In view of establishing marketing relationships with customers, Kuhn and Mosert (2015) examined the viability of clothing retailers' relationship intention by measuring and categorizing clothing customers according to their relationship intentions. Their study revealed that these retailers can effectively determine and categorize customers according to their relationship intentions. The study was silent about the

newness/novelty of such marketing intentions, and the collaborative element could only be implied or assumed in the persistence of business-customer relations and the sustained loyalty of customers to the clothing business. It can be inferred from this finding that even through there was no hard evidence of intense collaboration in the conduct of relationship marketing with customers, relationship marketing can serve as a useful yardstick for gauging small firms' relationship intentions with their customers.

Table 6.7 above also indicates that 94.6 % of the participants are of the opinion that their businesses use external collaboration for marketing innovation. In view of the demands for collaboration between multiple stakeholders in the construction industry in procurement processes, in marketing of construction and engineering services, regulation of erection of buildings and structures and enforcement of specifications, the expectation for external collaboration is perfectly reasonable. This finding closely mirrors Gloor, Paasivaara, Schoder and Willems' (2008) finding on determining collaborative innovation networks (COINs) through correlating performance with a social network structure. COINs, which are virtual teams with a collective vision to achieve innovation, relied on collaboratively sharing ideas, information, and work enabled by technology. In its development and marketing of an innovative new product offering for a global consulting company, COIN relied on recruiting new members from its surrounding learning communities (i.e., external collaboration) while using its global interest community as its innovative marketing networks (Gloor 2006; Gloor, Paasivaara, Schoder & Willems, 2008).

Figure 6.10 below indicates that 60% of participants believe that the business regularly develops new promotional activities to boost sales value. The modest marketing orientation of ECFs as far as promotions are concerned derives from their survivalist orientation and their limited financial, human and social capital resource bases that constrain their investing heavily in marketing activities. In comparison to larger companies, SMEs are constrained in financial, managerial, market resources as well as administrative and control systems, which are important for venturing into marketing activities (Gilmore & Carson 1999; Global Partnership for Financial Inclusion (GPFI), 2011; April & Reddy, 2015). Like other small, medium and micro enterprises (SMMEs),

ECFs also struggle to access credit schemes due to a lack of steady income (Nawai & Shariff, 2010), and managerial and administrative constraints such as the absence of legal requirements to regularly report financial information or write up business plans and failure to maintain audited financial accounts (Pandula, 2011).

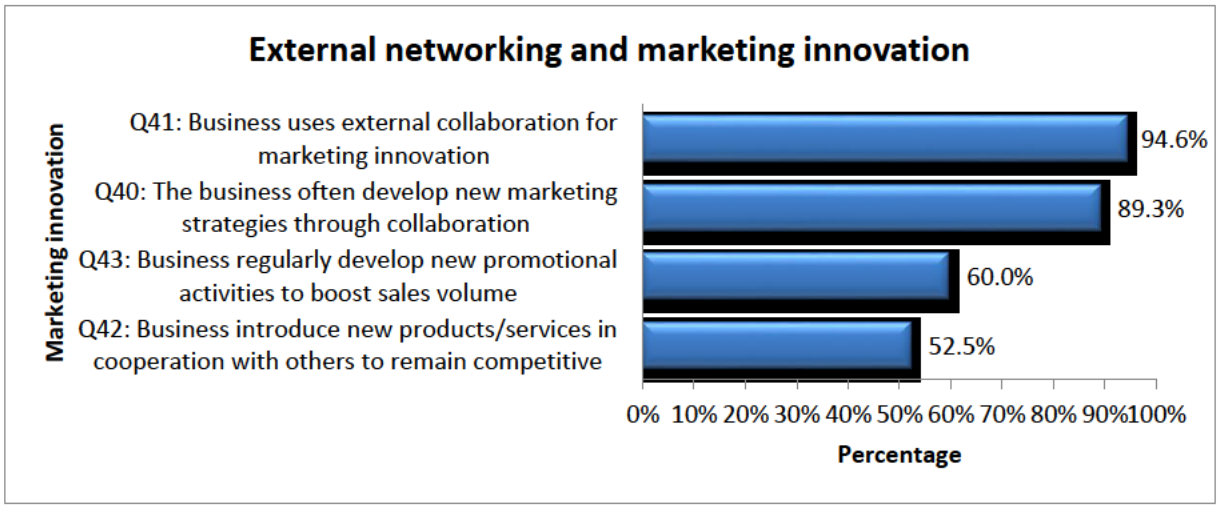


Figure 6-10: External networking and marketing innovation

The overall measure of external networking and marketing innovation is calculated using the latent factor in Table 6.7 as:

$$\textbf{ENMKI} = 0.779*\textbf{Q40} + 0.739*\textbf{Q41} + 0.873*\textbf{Q42} + 0.870*\textbf{Q43}$$

ORGANISATIONAL INNOVATION

Organisational strategy and vision cannot be spared from networking innovation. This section looks at external aspects of networking and their effects on organisational innovation in order to achieve constant growth. In Table 6.8 below, most of the participants (86.1%) believe that their businesses are active in external networking and organisational innovation through attending relevant workshops and seminars. While the RBV tends to assign importance to resource heterogeneity and resource immobility (i.e., their very costly nature to copy or inelastic in supply) (Ricardo, 1966; Barney, 1991; Ferreira et al., 2011), the popularity and perhaps, the success of external networking and organisational innovation among ECFs' owner/managers is hard to attribute to their uniqueness or rareness.

Consistent with social capital theory and the resource-based theory, it can be inferred that the successful application of networking and innovation did not necessarily reside in the rareness of resources (in this case external networking) and capabilities (i.e., organisational innovation) of a firm (as both workshops and seminars, activities through which these capabilities emerged, are common occurrences), but rather in their skilful combinations that makes replication almost impossible. As April's (2004) study into South African Financial Services suggested, resources such as IT assets did not possess properties of "rarity" per se; it was through combinations with an array of processes, actions, strategic intentions and programes within the firm, i.e., complementary resource combinations (CRCs), that enabled a firm to build socially complex and unique barriers to imitation that supported core capabilities, thereby sustaining a firm's competitive advantage.

Table 6-8: External networking and organisational innovation

External networking and organisational innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q48: The business attend relevant workshops and seminars	Count	3	41	28	295	151	86.1%	4.06	0.84	0.669
	%	0.6%	7.9%	5.4%	56.9%	29.2%				
Q49: The business benchmarks best practices in the construction industry	Count	2	30	40	376	67	86.0%	3.92	0.69	0.867
	%	0.4%	5.8%	7.8%	73.0%	13.0%				
Q50: The business seeks information from customers concerning supply chain management	Count	1	61	185	178	91	52.1%	3.58	0.92	0.749
	%	0.2%	11.8%	35.9%	34.5%	17.6%				
	Chronbach's Alpha							0.618		
	% of total variation accounted for by latent factor							58.68%		

About 86% of ECFs' owner/managers in Table 6.8 above believed that their businesses benchmarked best practices in the construction industry. This finding is surprising given that most ECFs are small to medium enterprises that may not have sufficient strategies, means and capacities to benchmark their practices. Perhaps the

highly regulated nature of the construction industry in terms of public procurement requirements, contract negotiations, subcontracting of labour, construction and building specifications, which all impose rules, regulations and bylaws and specifications for the construction industry, explains this finding (Kenny & Bezuidenhout, 1999; Windapo & Cattell, 2011), making both compliance and benchmarking not only necessary but rather desirable. Moreover, the need for all ECFs to register with the CIDB, including the need to comply with transformation requirements (as stipulated in the equity and diversity demands of the BBBEE codes on procurement issues and the Construction Sector Charter on Black Economic Empowerment), make benchmarking of building practices mandatory (Peters, Allison & Katalytik, 2011; Windapo & Cattell, 2011; PricewaterhouseCoopers, 2014).

More than half of the participants (52.1%), as depicted in Figure 6.11 below, believe that their businesses seek information from customers concerning supply chain management (SCM). In view of the vast numbers of ECFs registered with the CIDB (approximately 4853 in general construction and 4386 in Civil Engineering) (CIDB, 2010), it would be expected that any source of information about supply chain operations, procurement, pricing, and marketing would prove vital to the success of ECFs. However, the fact that fewer businesses sought information and advice from customers on SCM issues suggests that relatively fewer ECFs consider customers to credible and reliable sources of information when it comes to SCM issues.

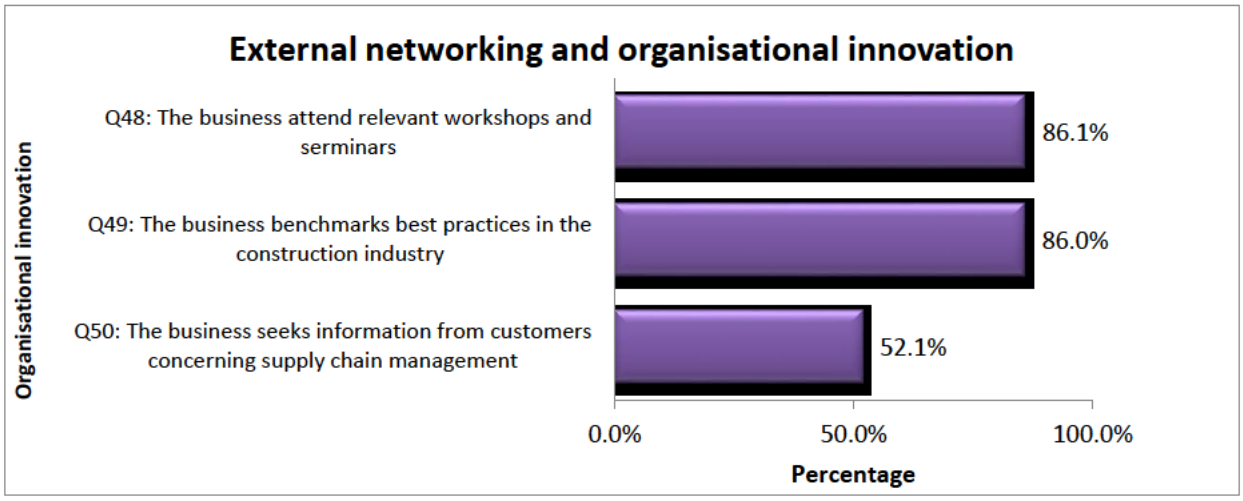


Figure 6-11: External networking and organisational innovation

Figure 6.11 shows that seeking information about supply chain management from customers is not an important part of organisational innovation (only 52.1% agreed). However, the respondents were affirmative that there is need for attending workshops and benchmarking best practices in the industry.

The overall measure of external networking and organisational innovation is calculated using the latent factor in Table 6.8 as:

$$\textbf{ENOI} = 0.669*\textbf{Q48} + 0.867*\textbf{Q49} + 0.749*\textbf{Q50}$$

6.2.1.5.2 Innovation through internal networks

PRODUCT/SERVICE INNOVATION

A product/service innovation refers to the introduction of a good/service that is new or significantly improved regarding its characteristics or intended uses (OECD, 2006). Product/service innovation is a difficult process, driven by advanced technologies, changing customer needs, shortening product life cycles and increased global competition.

As shown in Table 6.9 below most of the participants (86.9%) believed that a culture of developing new engineering technologies existed in their businesses. Given the centrality of engineering designs, engineering processes and activities in most of the ECFs' work and the close similarity of the work that they engaged in, developing new engineering technologies might have been an internal drive that enhanced the competitive capacity of these firms. As Dato-on, Banerjee and Saha (2015) observe, in this contemporary age of global competition and rapid technological change, a firm's capacity to introduce new processes, products, or ideas may impact business performance such as its competitiveness over its rivals. The centrality of new technological processes in business performance is affirmed by Kane (2015), who observes that a firm's fundamental capability to use engineering and social network

technologies is critical to creating its novel ways of visualizing, analysing and navigating its structure and of its partners' clients and suppliers' networks to maximize their organisational value and employee performance.

Table 6-9: Internal networking and product/service innovation

Internal networking and product/service innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q31: There is a culture of developing new and exciting engineering technologies	Count	4	25	39	345	105	86.9%	4.01	0.74	0.754
	%	0.8%	4.8%	7.5%	66.6%	20.3%				
Q32: Business believe development of internal capability is key to client loyalty	Count	0	2	32	369	115	93.4%	4.15	0.53	0.879
	%	0.0%	0.4%	6.2%	71.2%	22.2%				
Q33: Introduction of new products/service through in house effect is a source of competitive advantage	Count	0	3	71	355	87	85.7%	4.02	0.57	0.557
	%	0.0%	0.6%	13.8%	68.8%	16.9%				
	Chronbach's Alpha							0.551		
	% of total variation accounted for by latent factor							55.00%		

The findings (93.4%) also revealed that development of internal capability is instrumental in client loyalty. The importance of developing internal capabilities in broadening the clientele is supported by Mehra, Dixon, Brass and Robertson's (2006) who investigated how a leader's centrality in external and internal social networks is related to the performance. Their study reported that organisational members used their internal capabilities (especially their friendship ties) to access new customers and retain existing ones. Thus, internal capacities can serve as an invaluable tool for broadening the customer base and, perhaps, maintaining their loyalty. Although their study into social networks theory as a complementary perspective to the study of organisational change did not necessarily focus on customer loyalty per se, Ferreira and Armagan's (2011) also affirm the centrality of internal networks in responding pro-actively to customers' demands, becoming more efficient or providing higher quality goods and services.

Last, 85.7% of the participants as depicted in Table 6.9 above agree/strongly agree that the introduction of new products/services through in-house effect is a source of competitive advantage. While reliance on internal traits and capacities is critical to product innovation and creating competitive advantage, this cannot always be guaranteed in the medium term and long term in firms, irrespective of their size, hence the current study's findings are partially confirmed by literature. For instance, Kacperczyk (2008) suggests that in a knowledge-based and post-industrial economy, where talent and skills are readily portable, individuals are often faced with the choice of whether to deploy their creative efforts internally to develop new products/services within their current organisation to optimize the organisation's competitive value, or to leave to find their own organisations. Therefore, although firms deploy huge financial investments to train their employees to create new business products/services internally which maximize their competitive advantage, organisational members with good ideas often leave to find their own ventures (Kacperczyk, 2008). Although Kacperczyk's (2008) study was conducted in developed countries with little relevance for developing countries, his focus on internal deployment of talent to optimize the production of new products or services that leverage the competitive advantage of firms coheres with the findings of the current study.

Figure 6.12 shows that most respondents (93.4%) agreed/strongly agreed that business believed development of internal capability is key to client loyalty. The other two items of this construct also have high percentages of respondents agreeing, indicating that all aspects of internal networking are key to product/service innovation.

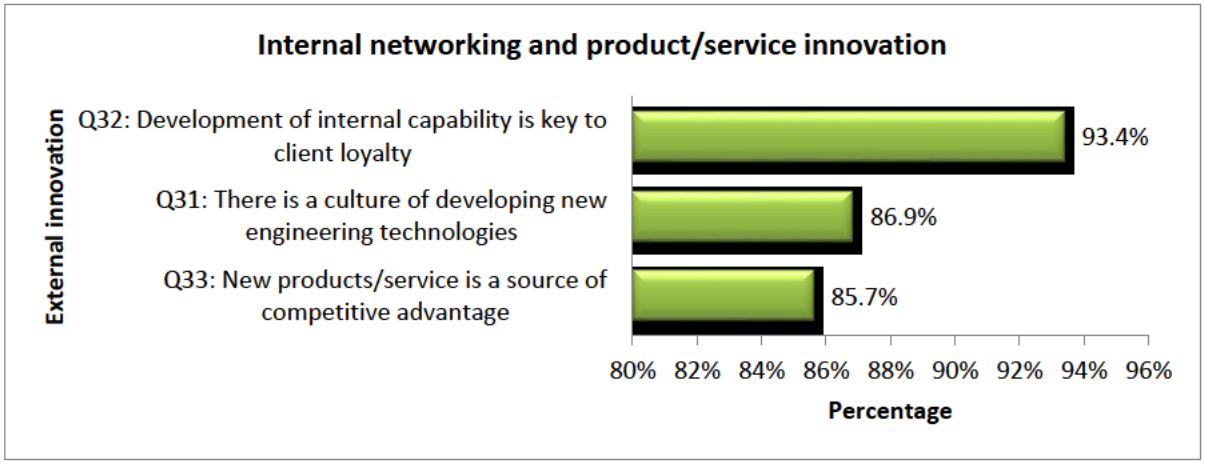


Figure 6-12: Internal networking and product/service innovation

If developing a firm's networks and strategically locating its network position can be conceived as key internal capabilities that can drive product innovation, then the current finding corroborates findings from the Canadian study. Ouimet, Landry and Amara's (2004) explored the relationship between the network positions (degree-number of ties an actor has within a network, betweenness- the extent to which an actor is in a position to play a broker role within a network and effective size-the diversity of an actors' network) of firms within a Canadian industrial cluster and radical innovation, which potentially triggers their competitive advantage.

The results showed that the degree and effective size are positively correlated with radical innovation, while there was no significant correlation between radicalness of innovation and betweenness. This implies that the degree of connectivity (network location and density), including the size of the business in relation to its rivals, has a significant relationship with the depth of product/service innovation of the firm. Where such innovation could be a source of customer loyalty was not their focus of investigation.

The overall measure of internal networking and product/service innovation is calculated using the latent factor in Table 6.9 above as:

INPSI = 0.754***Q31**+ 0.879***Q32** + 0.557***Q33**

PROCESS INNOVATION

Every process needs to be continually updated, improved or replaced altogether in order to keep pace with current trends and standards. This, the current study contends, must come through networking and innovation. This section looks at process innovation and internal networking

Table 6.10 below shows that 90.9% (% agree /strongly agree) of the participants think that their businesses develop in-house solutions to improve business operating processes in order to add value. The study also established that employees discuss business matters during breaks (71.7%). Most of the participants (93.6%) are of the

view that business members always seek clarity from colleagues if instructions are not clear to them. Both discussions and seeking clarity can be conceived as components of work-based collaborative engagements.

Table 6-10: Internal networking and process innovation

Internal networking and process innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q37: Business develops in house solutions to improve business operating processes in order to add value	Count	2	10	35	331	140	90.9%	4.15	0.65	0.725
	%	0.4%	1.9%	6.8%	63.9%	27.0%				
Q38: Employees discuss business matters during breaks	Count	4	2	141	230	143	71.7%	3.97	0.79	0.776
	%	0.8%	0.4%	27.1%	44.2%	27.5%				
Q39: Business members always seek clarity from colleagues if instructions are not clear to them	Count	1	2	30	282	204	93.6%	4.42	2.31	0.538
	%	0.2%	0.4%	5.8%	54.3%	39.3%				
	Chronbach's Alpha							0.259		
	% of total variation accounted for by latent factor							47.25%		

Liang, Huang, Lu and Wang (2015) demonstrated a positive relationship between farming co-operatives' participation in collaborative activities and the economic performance of such cooperatives. This demonstrates that sharing knowledge and collaborative discussions are the life-blood for the success of ECFs. Discussions and seeking clarity can also be conceived as critical components of communication. Sparrowe et al. (2001) examined the impact of centralization of communication on team performance, when the information being conveyed was complex, and found modest support for the proposition that centralized communication was dysfunctional.

As far as internal networking and process innovation is concerned, the need for seeking clarity is key, as most participants (93.6%) in Figure 6.13 below agreed. In fact, all three items under this construct have fairly high levels of approval from the survey participants. In view of the collaborative nature of engineering and construction projects (e.g., development of prototypes, engineering drawing, interpretation of building and engineering specifications), it is not uncommon to expect subordinates

and co-workers to seek clarity from their supervisors (Project managers, Site foremen or Site agents) and peers, respectively, on the development and interpretation of construction tasks and activities such as engineering, water and sewer reticulation, property development, and infrastructure development. Information sharing, influence and solidarity for informed decision making and successful task-relevant activities can be fostered through colleagues and teams that enable and supply access to valuable resources (Adler & Kwon, 2002; Felício, Couto & Caiado, 2009).

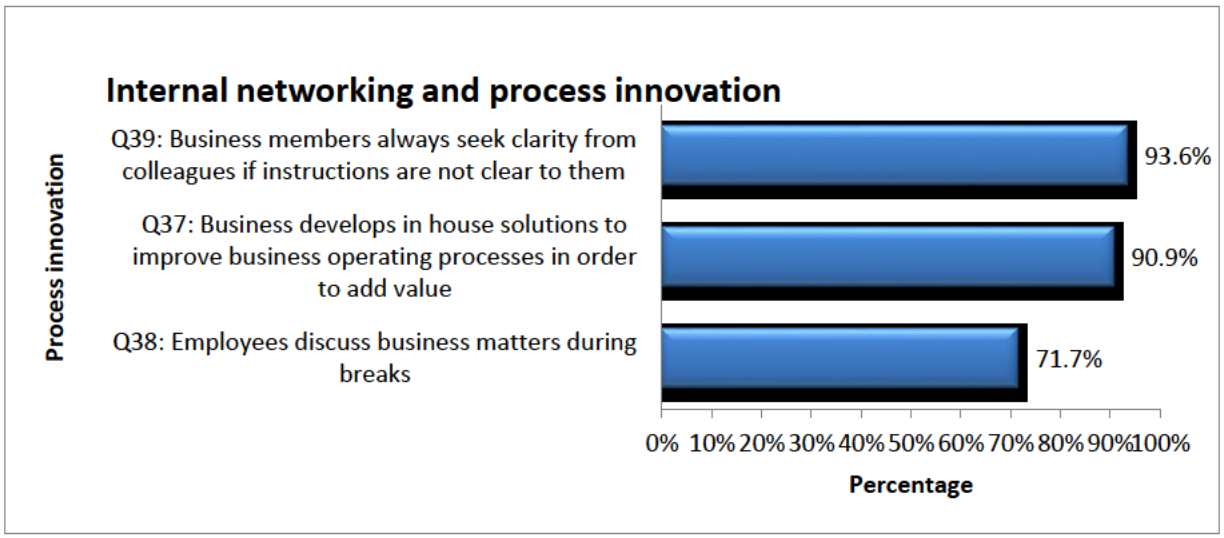


Figure 6-13: Internal networking and process innovation

The overall measure of internal networking and process innovation is calculated using the latent factor in Table 6.10 as:

$$\textbf{INPRI} = 0.725*\textbf{Q37} + 0.776*\textbf{Q38} + 0.538*\textbf{Q39}$$

MARKETING INNOVATION

In order to market products and build capacity for growth, a business needs to understand the trends in the marketing environment and this calls for marketing innovation, which can come through networking. Table 6.11 below shows that more than 94.6% of the participants believe that their companies are developing new marketing strategies through internal efforts. The capacity of the firm to develop innovative marketing strategies can be perceived as the firm's capability that optimizes

the competitive advantage and value of ECFs. Consistent with the resource based view, ECFs can be conceived to possess a bundle of unique internal (material, human, knowledge, intellectual, social capital), resources and capabilities that make engagement in new marketing strategies possible. If small firms such as ECFs are thought of as bundles of productive resources, and that different ECFs possess different bundles of these resources (Penrose, 1957), this view is the firm resource heterogeneity assumption (Ferreira, Azevedo & Ortiz, 2011).

Table 6-11: Internal networking and marketing innovation

Internal networking and marketing innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q44: Business regularly develop new marketing strategies through internal efforts	Count	0	12	16	298	193	94.6%	4.29	0.64	0.725
	%	0.0%	2.3%	3.1%	57.4%	37.2%				
Q45: Business regularly conducts new sales/marketing skills training	Count	0	17	14	318	168	94.0%	4.23	0.66	0.833
	%	0.0%	3.3%	2.7%	61.5%	32.5%				
Q46: Business regularly introduces new methods of customer care management	Count	1	14	36	313	153	90.1%	4.17	0.68	0.857
	%	0.2%	2.7%	7.0%	60.5%	29.6%				
Q47: The business adopts unique and creative methods through internal networks	Count	0	18	33	337	126	90.1%	4.11	0.66	0.668
	%	0.0%	3.5%	6.4%	65.6%	24.5%				
	Chronbach's Alpha							0.774		
	% of total variation accounted for by latent factor							59.99%		

Alternatively, ECFs' reliance on internal resources and capabilities can also be construed as their limited ability to draw on external resources and activities (e.g., external networks and export orientation) due to their limited internalization orientation. OECD (2009) and Halawe (2013) highlight that SMME's incapacity to exploit external resources and capabilities manifest in their inability to secure external funding to finance exports; difficulties in identifying foreign business partners and opportunities; limited macro-economic information to analyse/locate markets; and inability to contact potential overseas customers using the latest technologies, which all hinder SMME's internationalization efforts. About 94% of respondents in Table 6.11 above reported

that their business regularly conducts new sales/ marketing skills training. Since sales, production, marketing and sales, and research and development are all critical components of the firms' internal operations and processes that guarantee the success of firms, new sales/marketing skills training are the critical drivers of such activities. Consistent with the Resource Based View (see Barney 1991, Grant, 1991), small firms such as ECFs are constantly creating new combinations of capabilities (in particular through sales and marketing skills training) on the one hand, while market competitors such as rival ECFs are continually improving their competencies or imitating the most qualified competencies from these firms, on the other (Ferreira, Azevedo & Ortiz, 2010).

About 90.1% of ECFs' owner/managers in Figure 6.14 below confirmed that their businesses were introducing new methods of customer care management. Since ECFs are in constant competition with medium sized and large established businesses, there is scope to maximize their economic value through, for example, introducing cost saving customer management services, exploiting technological advances and responding to customer needs through e-marketplaces.

As Tallon et al. (2000) and Acosta, Colomo-Palacios and Loukis (2011) observe, just like IT supported firm value, ECFs' value emerges from downstream dimensions such as customer care services, product sales/service support and market expansions, internal dimensions (internal process, internal operation, and staff productivity), in addition to upstream dimensions (coordination with suppliers and business partners).

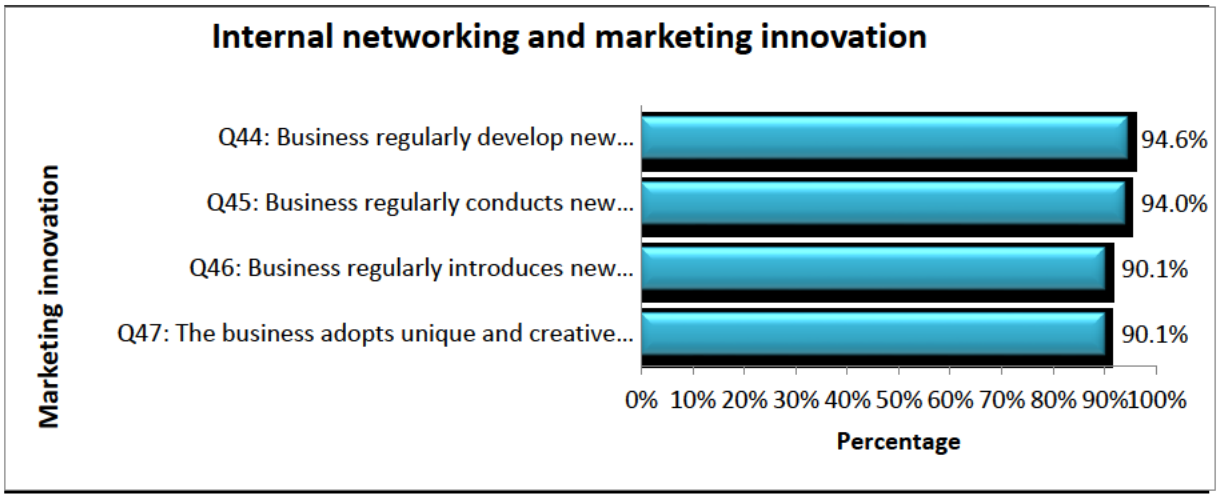


Figure 6-14: Internal networking and marketing innovation

Figure 6.14 shows that all four items of internal networking and marketing innovation are of almost equal importance, as they are all above 90% approval.

The overall measure of internal networking and marketing innovation is calculated using the latent factor in Table 6.11 as:

$$\textbf{INMKI} = 0.725*\textbf{Q44} + 0.833*\textbf{Q45} + 0.857*\textbf{Q46} + 0.668*\textbf{Q47}$$

ORGANISATIONAL INNOVATION

Organisational strategy and vision cannot be spared from networking innovation. This section looks at internal aspects of networking and their effects on organisational innovation in order to achieve constant growth. Table 6.12 below presents results for internal networking and organisational innovation. About 61.1% (% agree/strongly agree) think that business is particular about improving productivity of employees. The majority (94.2%) of respondents (% agree/strongly agree) are of the opinion that every employee is free to contribute ideas for new/improved organisational methods. About 81.3% agree/strongly agree that the business regularly does job rotation in order to enhance innovative capability. A total of 69.5% are of the view that business holds meetings to encourage individuals to contribute new ideas.

Table 6-12: Internal networking and organisational innovation

Internal networking and organisational innovation		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q51: Business is particular about improving productivity of employees	Count	35	18	148	160	156	61.1%	3.74	1.13	0.518
	%	6.8%	3.5%	28.6%	30.9%	30.2%				
Q52: Every employee is free to contribute ideas for new/improved organisational methods	Count	1	4	25	318	168	94.2%	4.26	0.60	0.687
	%	0.2%	0.8%	4.8%	61.6%	32.6%				
Q53: The business regularly do job rotation in order to enhance innovative capability	Count	6	23	68	304	117	81.3%	3.97	0.80	0.659
	%	1.2%	4.4%	13.1%	58.7%	22.6%				
Q54: Employees are adequately rewarded for their creative ideas	Count	2	20	129	256	110	70.8%	3.87	0.80	0.807
	%	0.4%	3.9%	25.0%	49.5%	21.3%				
Q55: Business hold meetings to encourage individuals to contribute new ideas	Count	0	19	138	212	146	69.5%	3.94	0.83	0.838
	%	0.0%	3.7%	26.8%	41.2%	28.3%				
	Chronbach's Alpha							0.719		
	% of total variation accounted for by latent factor							50.57%		

Figure 6.15 below gives the ranking of internal networking and organisational innovation items. The freedom of every employee to contribute ideas for new/improved organisational methods is of paramount importance, as it is the top- ranked item, with the business' concern about improving productivity of employees coming last at organisational level.

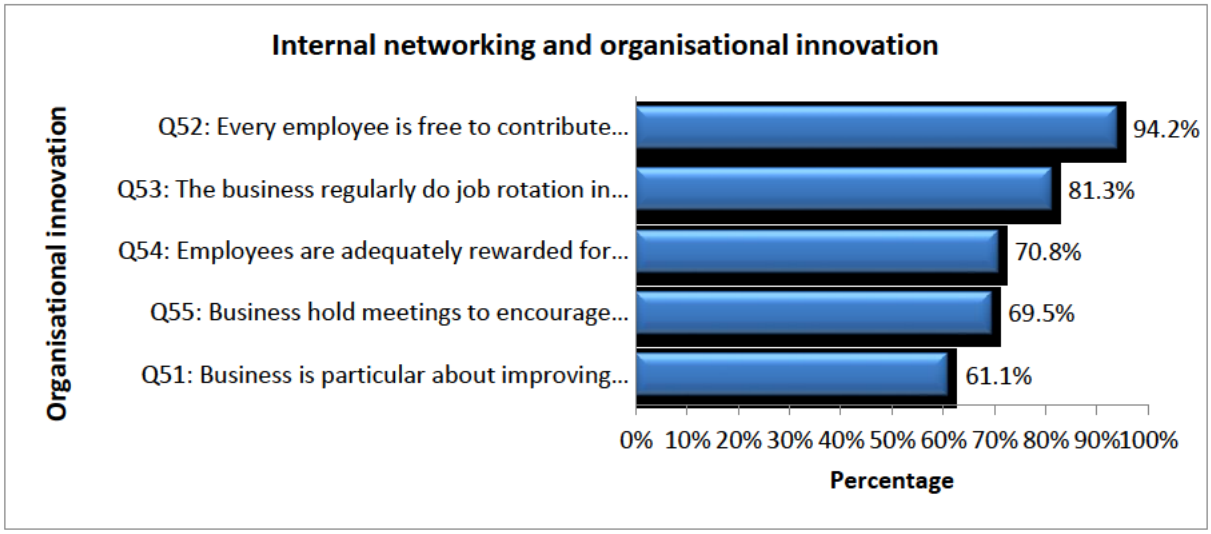


Figure 6-15: Internal networking and organisational innovation

The overall measure of internal networking and organisational innovation is calculated using the latent factor in Table 6.12 as:

$$\textbf{INOI} = 0.518*\textbf{Q51} + 0.687*\textbf{Q52} + 0.659*\textbf{Q53} + 0.807*\textbf{Q54} + 0.838*\textbf{Q55}$$

6.2.1.6 Social networking and competitiveness

Does business competitiveness translate into business financial performance? The results in this section helps this question. All the various networking and innovation issues discussed above should lead to business competitiveness. This section summarizes the level of competitiveness of the businesses investigated.

Table 6.13 below shows that more than 80% of the participants believe that their businesses put forth extensive efforts to market their value proposition and that their businesses are conscious of the environment. This external market orientation of the business is supported by Clarke and Smith (2002) who suggested that top managers in organisations who are also being asked to perform public relations and marketing roles such as interacting with those outside of the organisation will be more beneficial to expanding building brand reputation, prestige in industry circles and investigating potential employment opportunities. Successful companies realize that investing in market and customer knowledge (i.e., innovation) is essential to their ability to create high value products and services (Chang & Hsieh, 2011:3), and build strong position on innovative markets (Dolińska, 2013). The same market orientation mirrors Henneberg, Naudé and Mouzas' (2010) claim that through business marketing research, individual managers are increasingly challenged to conceptually integrate their perceptions and cognitions of their businesses into the industrial network approach, if they are to benefit from the web of interactions, sentiments and customer behaviours over time.

Table 6-13: Competitiveness

Competitiveness		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	%Agree/ Strongly agree	Mean	Std Dev	Coefficient
Q56: Extensive efforts are always done by the business to market its value proposition	Count	11	30	47	283	143	82.9%	4.01	0.89	0.485
	%	2.1%	5.8%	9.1%	55.1%	27.8%				
Q57: The business is conscious about the business environment	Count	1	6	29	277	202	93.0%	4.31	0.65	0.481
	%	0.2%	1.2%	5.6%	53.8%	39.2%				
Q58: The business has the strongest brand reputation in the market	Count	15	20	237	174	68	47.1%	3.58	2.03	0.380
	%	2.9%	3.9%	46.1%	33.9%	13.2%				
Q59: the business has a higher growth rate than competitors and the market as a whole	Count	32	86	218	101	77	34.6%	3.20	1.08	0.540
	%	6.2%	16.7%	42.4%	19.6%	15.0%				
Q60: The business has a higher than average net profit margin	Count	40	87	238	95	55	29.1%	3.07	1.04	0.523
	%	7.8%	16.9%	46.2%	18.4%	10.7%				
Q61: Networking with external sources makes the business innovative	Count	10	18	223	186	78	51.3%	3.59	0.86	0.860
	%	1.9%	3.5%	43.3%	36.1%	15.1%				
Q62: The internal innovative capabilities of the business developed over the years keep products/services hotly sort for in the market	Count	14	155	31	184	133	61.3%	3.52	1.24	0.840
	%	2.7%	30.0%	6.0%	35.6%	25.7%				
	Chronbach's Alpha							0.633		
	% of total variation accounted for by latent factor							37.46%		

According to Table 6.13 above only 47% believe that their businesses have the strongest brand reputation in the market and 46% were neutral. The absence of a strong brand reputation in market is unsurprising for the majority of ECFs for various reasons: their survivalist orientation; their capacity constraints, in particular a lack of highly innovative, skilled personnel to initiate new products; limited capital budget devoted to research and development in new product/service offering; the strong competition from large companies that often assume the lion's share of private and government tenders due their large capital outlays (Ntuli & Allopi, 2013; Cottle, 2015).

The lack of product innovation that triggers an established brand reputation, however, contradicts the popular view in literature that small enterprises tend to be more

innovative than larger ones due to limited bureaucratic constraints, their increased flexibility and easiness with which capacity utilization filters through the entire organisations compared to larger organisations (Michael & Palandjian, 2004; Pullen, Weerd-Nederhof, Groen & Fisscher, 2008; Dolińska, 2013). For ECFs smallness can be a source of competitive advantage, as it allows for the quick adoption of organisational innovation. Organisational innovation (which triggers brand reputation) can leverage a trusted bridging chain, which can be a proxy of a small world to find a required resource in a more filtered way than increasing search breadth (Lombard & Barnard, 2015), which is often a characteristic of large organisations.

Figure 6.16 below illustrates that as far as competitiveness is concerned, the businesses give more attention to being conscious about the business environment (93.0% agree/strongly agree). This view is buttressed by the popular belief that the organisation-wide generation of market intelligence that pertains to current and future customer needs, dissemination of intelligence across departments and organisation-wide responsiveness (Kohli & Jaworski, 1990) is a critical antecedent to innovation (Narver, Slater, & MacLachlan, 2004; Wang & Chung, 2013). In a study that examined how external social networking and external knowledge shape organisational innovativeness, Tortoriello (2006) revealed that knowledge sourced from outside the organisation enhances individuals' contributions to organisational innovativeness and ultimately competitiveness, although the depth of such innovation depends upon the type of external knowledge sourced by individuals and how similar or different this knowledge is to the knowledge available through their networks of contacts inside the organisation.

Figure 6.16 also illustrates that 82.9% of the owner/managers of the ECFs reported that their businesses devoted significant effort to marketing their value proposition. Since there are many firms that fall within the ECFs' category, the need for each construction or engineering firm to distinguish its value proposition from its rivals is critical to such firms' gaining of competitive advantage over their competitors. Given the open innovation approach that has dominated management practice since the late 1980s, firms are increasingly under pressure to draw on external competencies and

ideas (through marketing and collaborative projects), while also maintaining their firms' identity through retaining their value.

As Pullen et al. (2008) observe, in the open innovation paradigm, the company utilizes both internal and external ideas to create value, while defining internal mechanisms to claim some portion of that value. The porosity of the firms' boundaries reflects the interface between the core competencies, skills and value accessed from their external engagements (external marketing, advertising, research and development) and what is done inside the firm (Chesbrough, 2003; Pullen et al., 2008).

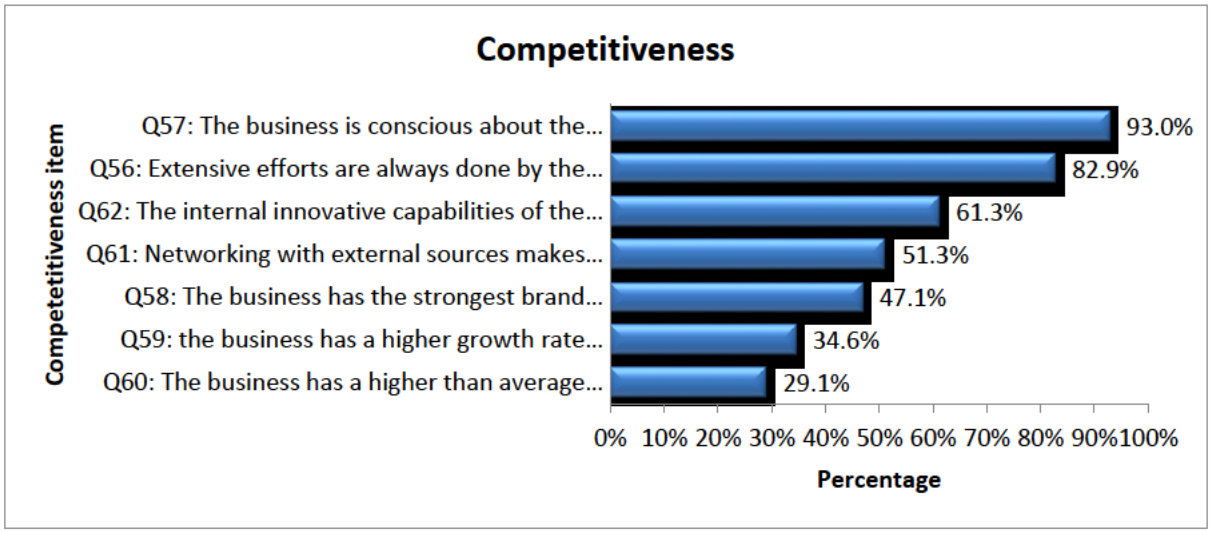


Figure 6-16: Ranking of competitiveness items

In terms of Figure 6.16 above 51.3% of ECFs' owner/managers reported that their networking with external sources makes their businesses innovative. It can be inferred that external networking builds organisational capacity for innovation as firms share their creative competencies and capabilities. This view finds support from Dilk et al. (2008) and Dolińska (2013), who observe that, business' external innovation networks (that is, when two or more independent firms jointly research, develop or disperse innovations) creates stable and cooperative collaboration through joint participation in multiple activities of the innovation process, which may increase their innovation performance.

The overall measure of competitiveness is calculated using the latent factor in Table 6.13 above as:

COMP = 0.485***Q56** + 0.481***Q57** + 0.380***Q58** + 0.540***Q59** + 0.523***Q60** + 0.860***Q61** + 0.840***Q62**

6.2.1.7 Social networking and business performance

6.2.1.7.1 Business financial performance

As shown in Table 6.14 below, most of the participants (77.5%) are neutral or disagree that sales growth of their businesses has been increasing over the last five years as compared to competitors. In view of the economic recession that hit South Africa in financial year 2008/9 and whose devastating impacts resurfaced in the 2014/2015 financial year, due to the slow growth of the international economy, contraction of the domestic economy, rising inflation and severe loss of jobs in the South African infrastructural development and mining sectors, the negative responses and indecisions on sales growth were inevitable.

Following the 2008 economic recession, the construction business was badly affected when investments plunged by 11.8% in 2010 (Construction, 2015), with the mining sector experiencing a 22.1% contraction in output in the first quarter and manufacturing, services and tourism also badly hit and the nation's GDP growth falling to its lowest rate in more than six years (CDE Round Table, 2008). The Global Financial Crisis of 2008, which led to an economic downturn, has led to slow economic recovery (van der Nest, 2015:3) and negative effects on the construction business sales.

Table 6-14: Financial performance

Financial Performance		Frequency Distribution						Descriptive		Latent Factor (Principal component)
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/ Strongly Agree	Mean	Std Dev	Coefficient
Q63: Business sales growth has been increasing over the last 1-5 years as compared to competitors	Count	67	146	183	93	22	22.5%	2.72	1.04	0.280
	%	13.1%	28.6%	35.8%	18.2%	4.3%				
Q64: Estimated business sales growth resulting from completed projects has been increasing over the past 1-5 years	Count	10	205	100	106	88	38.1%	3.11	1.17	0.903
	%	2.0%	40.3%	19.6%	20.8%	17.3%				
Q65: The estimated growth in gross profit has been increasing over the past 1-5 years	Count	7	202	91	160	45	40.6%	3.07	1.06	0.938
	%	1.4%	40.0%	18.0%	31.7%	8.9%				
Q66: ROI for the business over the past 1-5 years has been growing	Count	25	225	67	150	42	37.7%	2.92	1.12	0.922
	%	4.9%	44.2%	13.2%	29.5%	8.3%				
Q67: The number of accidents over the last 1-5 years in the business has been decreasing	Count	35	166	74	137	95	45.8%	3.18	1.26	0.682
	%	6.9%	32.7%	14.6%	27.0%	18.7%				
	Chronbach's Alpha							0.811		
	% of total variation accounted for by latent factor							61.75%		

Responses to items on the businesses' financial performance shows that the participants do not believe that the businesses have been performing well. However, 45% of the participants believe that accidents have been decreasing during the last one to five years. The sharp decline in work-related accidents could be attributed to: 1) the strict adherence to construction site-related precautions and safety standards by ECFs, 2) heavy penalties imposed by construction safety regulation bodies when safety standards are violated, 3) and the high life assurance claims from insurance firms on construction companies, in cases where gross negligence and flouting of construction site safety standards are detected. For instance, ECFs' registration with CIDB and other authorities such as the Compensation Commissioner and Department of Labour requires these firms to meet certain requirements in relations to safety standards and the conduct of operations (Cottle, 2015). The declining statistics on work-related accidents could also be attributed to the fact that health and safety are key priorities to stakeholders due to their impact on lives and morale of employees,

their potential threat to productivity and successful delivery on contracts, and they ultimately impact the reputation of companies (PricewaterhouseCoopers, 2014).

As far as financial performance is concerned, Figure 6.17 below shows that there has been some degree of decrease in the number of accidents over the last one to five years in the business (45.8% agreed). However, the percentages of those who agree/strongly agree to all the items that measure financial performance are quite low, which is indicative of the low financial performance by the companies investigated in this study. Very few companies have seen business sales growth increasing over the last one to five years as compared to their competitors (22.5% agreed/strongly agreed).

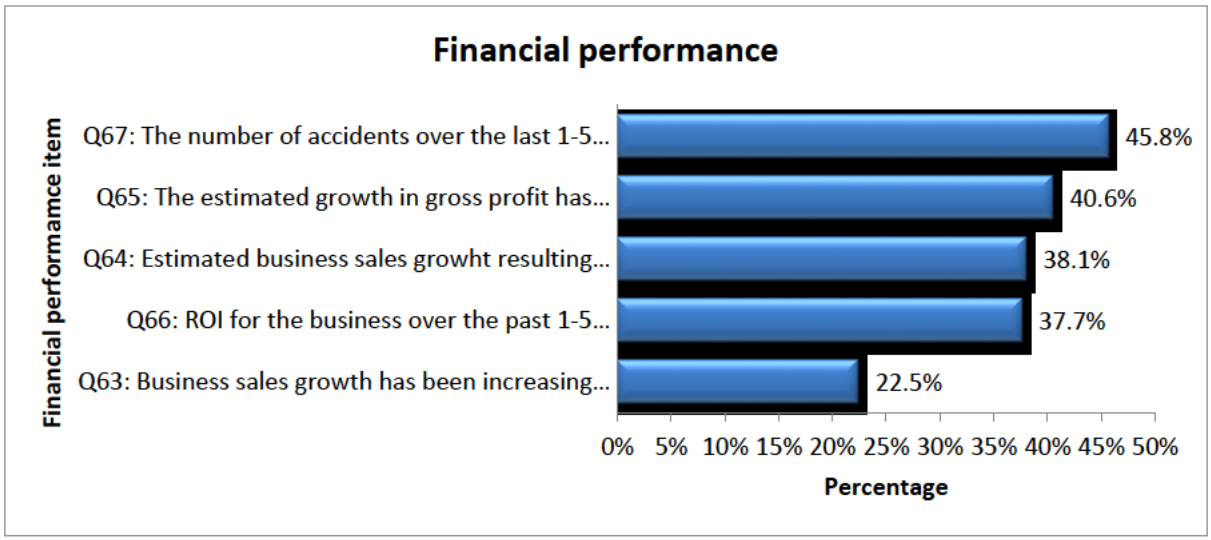


Figure 6-17: Financial performance

Sales growth is the major financial performance concern, as it is the lowest ranking in Figure 6.17. The ever-rising cost of fuel, building materials, overheads and expatriate labour all contribute to rising cost of production in the construction sector, which undermines prospects for increased sales, gross profit and ultimately return on investment. As PricewaterhouseCoopers (PwC) observes, the year 2014 was tough for most construction companies in South Africa due to a lack of economic recovery (PwC, 2014). All these negative economic conditions are a consequence of the recent global financial crisis, global depressed growth, recent cutbacks in the US quantitative easing, labour strike action in the mining sector, and constraints in the public sector,

which have dampened growth prospects in the South African construction industry (CIBD, 2015).

The overall measure of financial performance is calculated using the principal component (latent factor) in Table 6.14 above as:

FINPER = 0.280***Q63** + 0.903***Q64** + 0.938***Q65** + 0.922***Q66** + 0.682***Q67**

6.2.1.7.2 Business non-financial performance

Table 6.15 below shows that most of the companies have not been growing in numbers, as indicated by the percentage of businesses that have recorded more than 5 employees joining them. Only 22.5% of the businesses have seen more than 5 employees joining the company in the past years, 24.4% in the past 2 years, 26.9% in the past 3 years, 27.5% in the past 4 years and 28.2% in the past 5 years.

Table 6-15: Non-financial performance

Non-financial performance		Frequency Distribution					
		0	1-5	6-10	11-50	51 or more	% more than 5
Q68:How many employees joined the company in the past 1 year	Count	189	208	75	16	24	22.5%
	%	36.9%	40.6%	14.6%	3.1%	4.7%	
Q69:How many employees joined the company in the past 2 years	Count	335	55	30	78	11	23.4%
	%	65.8%	10.8%	5.9%	15.3%	2.2%	
Q70:How many employees joined the company in the past 3 years	Count	327	45	77	35	25	26.9%
	%	64.2%	8.8%	15.1%	6.9%	4.9%	
Q71: How many employees joined the company in the past 4 years	Count	317	53	42	80	18	27.5%
	%	62.2%	10.4%	8.2%	15.7%	3.5%	
Q72:How many employees joined the company in the past 5 years	Count	301	65	46	51	47	28.2%
	%	59.0%	12.7%	9.0%	10.0%	9.2%	
	Chronbach's Alpha						0.956
	% of total variation accounted for by latent factor						85.33%

The majority of companies have seen little growth in terms of number of employees. The low growth in terms of number of employees, another measure of firm performance, is a consequence of the declining economic conditions and the low

capitalization in the sector. The slow business activity in ECFs is similar to the mixed economic signals in a large construction sector. As PwC (2014) reports, the 2014 financial year saw mixed results in the performance of market capitalization for the construction sector: Ten companies reflected an increase and five a decrease and for the 16 companies analysed, market capitalization had slightly decreased to R67.4 billion as of 30 June 2014 (R68.1 billion as of 30 June 2013).

6.2.1.8 External versus internal social networking

Results in Table 6.16 shows that, besides external and internal social networking variables being positively and significantly correlated (correlation=0.403, p-value=0.000).

Table 6-16: Correlations between networking and product/service innovation

Pearson's correlations			Social networking		Product/service innovation	
			External social networking ties	Internal social networking ties	External networking and product/service innovation	Internal networking and product/service innovation
Social networking	External social networking ties	Correlation	-			
		p-value				
		N				
	Internal social networking ties	Correlation	0.403**			
		p-value	0.000	-		
		N	484			
Product/service innovation	External networking and product/service innovation	Correlation	0.394**	0.505**		
		p-value	0.000	0.000	-	
		N	480	498		
	Internal networking and product/service innovation	Correlation	0.244**	0.445**	0.602**	
		p-value	0.000	0.000	0.000	-
		N	487	506	503	

The strong correlation between internal social networking and internal and product innovation seems to support Cooke, Clifton and Oleaga's (2005) claim that only social capital networks on a firm level of analysis have showed strong effects on innovation. As Dolińska's (2013) observes the value of the (internal and external product) innovation depends on the firm ever-growing its knowledge network resources, exchange and creation of knowledge with internal partners and/or external competitors

in innovation processes, and these partners and rivals' effective commercial application in innovative solutions.

6.2.2 INFERENTIAL STATISTICS

6.2.2.1 ADDRESSING SPECIFIC OBJECTIVES OF THE STUDY

The study is comprised of various objectives that build into the main objective, which is: **To determine whether or not there is a significant positive relationship between ECFs' extent of social capital formation – internal and external social networks, degree of innovation, competitiveness and firm performance. These relationships will be analysed pairwise using correlation analysis.** Augmenting the main objective, the study also had 16 hypotheses which were tested using Pearson's Correlation method and percentage analysis and will be presented with the various relationships of the study in the subsequent sections below.

6.2.2.1.1 The relationship between networks and product/service innovation

This section tries to find if there are strong relationships between networks and innovation and internal and external networks by means of calculating Pearson's correlations of the variables (constructs) created in the previous sections. Results in Table 6.17 below shows that, besides external and internal social networking variables being positively and significantly correlated (correlation=0.403, p-value=0.000), the social networking variables are also both positively and significantly correlated to product/service innovation.

The positive and significant correlation between social networking and product innovation supports Dolińska's (2013) finding that internal and external networks enable companies to react dynamically to changeable conditions of product innovation and their process of execution, learn how to efficiently create and use knowledge in innovations, and apply them efficiently in economy.

Table 6-17: Correlations between networking and product/service innovation

Pearson's correlations			Social networking		Product/service innovation	
			External social networking ties	Internal social networking ties	External networking and product/service innovation	Internal networking and product/service innovation
Social networking	External social networking ties	Correlation	-			
		p-value				
		N				
	Internal social networking ties	Correlation	0.403**			
		p-value	0.000	-		
		N	484			
Product/service innovation	External networking and product/service innovation	Correlation	0.394**	0.505**		
		p-value	0.000	0.000	-	
		N	480	498		
	Internal networking and product/service innovation	Correlation	0.244**	0.445**	0.602**	
		p-value	0.000	0.000	0.000	-
		N	487	506	503	

External social networking is positively and significantly correlated to external product/service innovation (correlation=0.394, p-value=0.000). External social networking is also positively and significantly correlated to internal product/service innovation (correlation=0.244, p-value=0.000), but with a lesser effect size than its relationship with external product/service innovation. This finding supports Clark and Smith's (2002) finding that both internal networks and external networks are associated with increased innovation even though their impact is different. They report that although large *internal* networks are important for innovation, small *external* networks are most beneficial -a finding that is consistent with the importance of strong external ties in shaping a smaller set of key strategic relationships, which are fundamental to the success of the firm (Clark & Smith, 2002).

Internal social networking is positively and significantly correlated to external product/service innovation (correlation=0.505, p-value=0.000). Internal social networking is also positively and significantly correlated to internal product/service innovation (correlation=0.445, p-value=0.000). There is also a very high, positive and significant correlation between external and internal product/service innovation (correlation=0.602, p-value=0.000). This strong correlation mirrors van der Vlies and

Maas's (2009) finding that due to fragmentation of the construction industry and restriction of contacts in professional networks to those in the building projects, contractors who are able to bridge the gaps between networks (structural holes) are able to get their ideas adopted more easily (within and outside the organisation) and so are able to spread their innovations more rapidly. The results in this section highlight the importance (and the existence of a strong relationship) of both external and internal social networking to bring about product/service innovation.

Test on Hypothesis 1

H_{o1}: External social networking is not positively related to product/service innovation.
H_{a1}: External social networking is positively related to product/service innovation.

The results in Table 6.17 illustrate that external social networking is positively and significantly correlated to external product/service innovation (correlation=0.394, p-value=0.000) and the overall effect is higher than that of its relationship with internal product/service innovation (correlation=0.244, p-value=0.000). Therefore, the alternative hypothesis **(H_a1: external social networking is positively related to product/service innovation**) is supported and the null hypothesis **(H_o1: external social networking is not positively related to product/service innovation)** is not supported.

Test on Hypothesis 2

H_{o2}: There is no positive relationship between internal social networking and product/service innovation.
H_{a2}: There is a positive relationship between internal social networking and product/service innovation.

Internal social networking is positively and significantly correlated to external product/service innovation (correlation=0.505, p-value=0.000). Internal social networking is also positively and significantly correlated to internal product/service

innovation (correlation=0.445, p-value=0.000) (see Table 6.17). Therefore, the alternative hypothesis **(H_{a2}: There is a positive relationship between internal social networking and product/service innovation)** is supported and the null hypothesis **(H_{o2}: There is no positive relationship between internal social networking and product/service innovation)** is not supported.

Test on Hypothesis 3

H_{o3}: There is no positive relationship between internal and external social networking.

H_{a3}: There is a positive relationship between internal and external social networking.

The results in Table 6.16 illustrate that internal and external social networking variables are positively and significantly correlated (correlation=0.403, p-value=0.000). Therefore, the alternative hypothesis **(H_{a3}: That there is a positive relationship between internal and external social networking) is supported**, while the null hypothesis **(H_{o3}: That there is no positive relationship between internal and external social networking)** is rejected.

6.2.2.1.2 The relationship between networks and process innovation

Results in Table 6.18 below show that external social networking is positively and significantly correlated to external process innovation with a small effect size (correlation=0.205, p-value=0.000). External social networking is also positively and significantly correlated to internal process innovation (correlation=0.125, p-value=0.006), also with a small effect size. These two findings suggest the relationship between external networking and internal (such as team work, organisation-wide flow of knowledge and information) and external processes (such as trust and collaboration) that support internal and external process innovations respectively. Literature identified organisational social capital as critical to the building of trust with external partners that have potential to build intellectual capital and external innovations in the organisation (Adler & Kwon, 2002; Saeed, 2012).

Table 6-18: Correlation between social networking and process innovation

Pearson's correlations			Social networking		Process innovation	
			External social networking ties	Internal social networking ties	External networking and process innovation	Internal networking and process innovation
Social networking	External social networking ties	Corre				
		p-value	-			
		N				
	Internal social networking ties	Corr	0.403**			
		p-value	0.000	-		
		N	484			
Process innovation	External networking and process innovation	Corr	0.205**	0.471**		
		p-value	0.000	0.000	-	
		N	489	509		
	Internal networking and process innovation	Corr	0.125**	0.362**	0.383**	
		p-value	0.006	0.000	0.000	-
		N	490	508	514	

Internal social networking is positively and significantly correlated to external process innovation (correlation=0.471, p-value=0.000) and internal process innovation (correlation=0.362, p-value=0.000). It would appear that internal social networking is a stronger driver of both external and internal process innovation than external social networking. Consistent with social capital theory's perspective on the role of networks of relationships in granting access to resources, especially information benefits not available to non-members of the network, Ofori and Sackey (2010) assessed the functions and contribution of social capital networks within Ghanaian organisations to firm performance using a sample frame of firms listed in the Ghana Club 100. Their study established that social networks that give rise to social capital, are critical to knowledge sharing in Ghanaian organisations; help trigger successful task execution and process innovations, and assist in the attainment of organisational objectives. However, the finding on the strong correlation between social networks and external process innovation seems to contradict findings from other literature, especially that of traditional societies.

A study conducted by Light and Dana (2013) into the boundaries of social capital among the Euro-Americans (Indigenous Alaskans) situated in the Old Harbor in Alaska

revealed that their social networking did not give rise to entrepreneurial innovation due to their economic conservatism and exclusion (especially of external people as business partners) that guaranteed the survival of their society. The economic conservatism in these indigenous Alaskans' social capital served as a defensible business decision that reliably reproduced the society's economic survival but suppressed process innovation (Lamoreaux, 2008; Light & Dana, 2013).

There is also a very high, positive and significant correlation between external and internal process innovation (correlation=0.383, p-value=0.000). The strong relationship between internal and external process innovation could be indicative of the porous boundaries between the organisation's internal and external influences, which allows the firms to tap into both internal knowledge networks and knowledge sharing practices that give rise to internal innovations, and external collaborations and partnerships that allow the benchmarking of best innovation practices, enhancing external process innovations.

In the context of ECFs, where the open innovation paradigm dominates, such firms are increasingly required to depend on their internal networks for collaborative task execution and sharing of technical and marketing information as much as they rely on external partners for knowledge exchange and building of trust for the development of their innovation processes. Social networks can affect enterprise performance directly by providing entrepreneurs with technical information about technologies and markets, which help enterprises become more internal process innovation-driven due to information exchange and trust among partners (Knack & Keefer, 1997; Liang, Huang, Luc & Wang, 2015). Moreover, with regard to external process innovation, social networks are considered to extend the resource exchange and linkages between individuals and groups, which promote product innovation and accelerate the diffusion of external process innovations (Tsai & Ghoshal, 1998; Robison et al., 2002; Liang et al., 2015).

Test on Hypothesis 4

H_{o4}: *There is no positive relationship between external social networking and process innovation.*

H_{a4}: *There is a positive relationship between external social networking and process innovation.*

A very high, positive and significant correlation was established between external social networking and internal process innovation (correlation=0.383, p-value=0.000). A fairly high and significant correlation was established between external social networking and external process innovation (correlation=0.205, p-value=0.000)- see Table 6.18. Therefore, the alternative hypothesis **(H_{a4}: There is a positive and significant relationship between external social networking and process innovation)** is supported and the null hypothesis **(H_{04}: There is no positive relationship between external social networking and process innovation)** is rejected.

Test on Hypothesis 5

H_{o5}: *There is no positive relationship between internal social networking and process innovation.*

H_{a5}: *There is a positive relationship between internal social networking and process innovation.*

The Pearson's correlation analysis performed revealed that internal social networking is positively and significantly correlated to external process innovation (correlation=0.471, p-value=0.000) and internal process innovation (correlation=0.362, p-value=0.000)- see Table 6.18. Therefore, the alternative hypothesis **(H_{a5}: There is a relationship between internal social networking and process innovation)** is supported and the null hypothesis **(H_{o5}: There is no relationship between internal social networking and process innovation)** is not supported.

6.2.2.1.3 The relationship between networks and marketing innovation

Results in Table 6.19 below show that external social networking is positively and significantly correlated to external marketing innovation (correlation=0.315, p-value=0.000). The creation of external ties and relations of trust with external partnerships and associations (e.g., building associations for the conduct of construction research, building alliances for collective negotiation of prices with suppliers) can serve as important platforms for instituting market innovations. Social networking is reported to have inter-associations and impacts firms' product innovation by facilitating resource exchange and resource combinations (Tsai & Ghoshal, 1998), which can inevitably benefit market orientation of organisations (Kyriakopoulos et al., 2004; Liang et al., 2015).

External social networking is also positively and significantly correlated to internal marketing innovation (correlation=0.272, p-value=0.000). It is clear that ECFs' capacity to collaborate regularly with external stakeholders as well as draw on market knowledge (e.g. marketing demands, consumer trends and tastes) acquired from outside the firm is critical to developing new marketing strategies such as developing existing as well as new markets.

Egeland and Birkeland's (2012) explanatory case study explored how management and employees' social capital affects the innovation process and conducted semi-structured interviews with two gas and oil companies (Depro AS and iQubeS AS) in Norway. Their findings suggest that Depro AS' operation in a closely linked community of operators, service providers and suppliers (external social networking) was fundamental not only to developing trust and competition in the organisation, but was essential for their marketing innovation process. A contradictory finding was that due to their strong network in the industry, Depro AS did not intentionally participate in marketing and advertising activities; instead they prioritized to continuing to build their network (Egeland & Birkeland, 2012).

Table 6-19: Correlation between social networking and marketing innovation

Pearson's correlations			Social networking		Marketing innovation	
			External social networking ties	Internal social networking ties	External networking and marketing innovation	Internal networking and marketing innovation
Social networking	External social networking ties	Correlation				
		p-value	-			
		N				
	Internal social networking ties	Correlation	0.403**			
		p-value	0.000	-		
		N	484			
Marketing innovation	External networking and marketing innovation	Correlation	0.315**	0.497**		
		p-value	0.000	0.000	-	
		N	485	502		
	Internal networking and marketing innovation	Correlation	0.272**	0.558**	0.649**	
		p-value	0.000	0.000	0.000	-
		N	484	504	504	

Internal social networking is positively and significantly correlated to external marketing innovation (correlation=0.497, p-value=0.000) and internal marketing innovation (correlation=0.558, p-value=0.000). Again, internal social networking is a stronger driver of both external and internal marketing innovation than external social networking. These results point to the dominance of stronger internal team networking over external social networking. The structure of relations (e.g., closely knit internal ties) could help establish obligations between social actors (e.g., employees and management), create a trustworthy social environment, open channels for information, and set norms and impose sanctions on forms of social behaviours (Coleman, 1988; Fu, 2004, Leek & Canning, 2011) that support internal marketing innovation. Therefore, such internal linkages that characterize the structures of collective actors give them cohesiveness and its associated benefits, such as internal marketing innovation (Adler & Kwon, 2000; Fu, 2004; Leek & Canning, 2011).

There is also a very high, positive and significant correlation between external and internal marketing innovation (correlation=0.649, p-value=0.000). Literature suggests

that external and internal social relationships provide valuable learning resources (Adler & Kwon, 2002), which may be essential for developing innovations such as external and internal marketing innovations (Carrasco-Hernández & Jiménez-Jiménez, 2013). This supports the view that firm employee relationships contribute to enhance the firm's ability to identify and develop innovation opportunities within and without the organisation that could not be identified and developed otherwise (Carrasco-Hernández & Jiménez-Jiménez, 2013).

Test on Hypothesis 6

H_{o6}: *There is no positive relationship between external social networking and marketing innovation.*

H_{a6}: *There is a positive relationship between external social networking and marketing innovation.*

The performance of Pearson's correlation analysis revealed that external social networking is positively and significantly correlated to external marketing innovation (correlation=0.497, p-value=0.000) and internal marketing innovation (correlation=0.558, p-value=0.000)- see Table 6.18 above. Therefore, the alternative hypothesis **(H_{a6}: There is a positive relationship between external social networking and marketing innovation)** is accepted and the null hypothesis **(H_{o6}: There is no positive relationship between external social networking and marketing innovation)** is rejected.

Test on Hypothesis 7

H_{o7}: *There is no positive relationship between internal social networking and marketing innovation.*

H_{a7}: *There is a positive* relationship between internal social networking and marketing innovation.

The performance of Pearson's correlation analysis revealed that internal social networking is positively and significantly correlated to external marketing innovation (correlation=0.497, p-value=0.000) and internal marketing innovation

(correlation=0.558, p-value=0.000) -see Table 6.18. Again, internal social networking is a stronger driver of both external and internal marketing innovation than external social networking. Therefore, the alternative hypothesis **(H_{a7}: There is a positive relationship between internal social networking and marketing innovation)** is accepted and the null hypothesis **(H_{o7}: There is no positive relationship between internal social networking and marketing innovation**) is rejected.

6.2.2.1.4 The relationship between networks and organisational innovation

Results in Table 6.20 shows that external social networking is positively and significantly correlated to external organisational innovation (correlation=0.378, p-value=0.000). External social networking is also positively and significantly correlated to internal organisational innovation (correlation=0.197, p-value=0.000).

Table 6-20: Correlation between social networking and organisational innovation

Pearson's correlations			Social networking		Organisational innovation	
			External social networking ties	Internal social networking ties	External networking and organisational innovation	Internal networking and organisational innovation
Social networking	External social networking ties	Correlation p-value N	-			
	Internal social networking ties	Correlation p-value N	0.403** 0.000 484	-		
Organisational innovation	External networking and organisational innovation	Correlation p-value N	0.378** 0.000 484	0.577** 0.000 505	-	
	Internal networking and organisational innovation	Correlation p-value N	0.197** 0.000 484	0.342** 0.000 503	0.296** 0.000 504	-

Acquaah (2008), studied how Ghanaian SMEs acquire positive spillovers from developing social connections and ties with top managers of other businesses, with entrepreneurs of larger businesses, and with businesses that are suppliers or customers to the SMEs. His study reports that external social networking breeds external organisational, product and market innovation as customers provide information about preferences in the market on which SMEs should focus in organisational processes, production and marketing of their products or services, respectively. Through external social networking, internal organisational innovation can also be promoted through provision of quality raw material, financial resources

and credit services, and other services by suppliers that can help SMEs improve their efficiency and effectiveness in their operations (Acquaah, 2008).

Internal social networking is positively and significantly correlated to external organisational innovation (correlation=0.577, p-value=0.000) and internal organisational innovation (correlation=0.342, p-value=0.000). Again, internal social networking is a stronger driver of both external and internal organisational innovation than external social networking. Although not directly focused on innovation per se, the results of Bazan and Schmitz's (1997) study into the causal connections between social capital and industrial development in Southern Brazil insinuated external organisational innovation such as a strong export orientation. Their study revealed how the early phases of industrial growth drew on social capital generated in a period which preceded industrialization, and that the rapid export growth in later years benefited from this social capital, even though the same social capital could have contributed to its decline thereafter.

This study's findings confirm other studies' findings on the effects of internal social capital on internal organisational innovation. For example, a study that explored inter-group differences in social capital, intra-organisational differences in innovation capabilities and innovation readiness found evidence that supports a strong connection between higher levels of internal social networking and increased organisational innovative capability (Camps & Marquès, 2011).There is also a low effect size, positive and significant correlation between external and internal organisational innovation (correlation=0.296, p-value=0.000). This finding suggests the possible striking similarity between the internal and external resources that ECFs' owner/managers draw on to realize their internal and external organisational innovation initiatives.

In a study that examined the importance of internal sources of knowledge and their relationship with organisational innovation and organisational performance, Zaied, Louati and Affes (2015) confirmed a relationship between internal and external

sources of knowledge with organisational innovation. This may mean that firms in the construction sector may be drawing on complementary if not identical resources (such as 'funds of knowledge') in their pursuit of internal and external organisational innovation. This interpretation supports an earlier observation by Read (2000) in his study on the main determinants of successful organisation innovation, where management support for an innovative culture, a customer/market focus, and a high level of internal and external communication/networking were considered the core determinants of such innovation. It can be argued that management support for innovation, customer focus and networking can all be acquired and sustained both internally and externally.

Test on Hypothesis 8

H_{o8}: *There is no relationship between external social networking and organisational innovation.*

H_{a8}: *There is a relationship between external social networking and organisational innovation.*

Results in Table 6.20 demonstrate that external social networking is positively and significantly correlated to external organisational innovation (correlation=0.378, p-value=0.000). External social networking is also positively and significantly correlated to internal organisational innovation (correlation=0.197, p-value=0.000). Therefore, the alternative hypothesis **(H_{a8}: There is positive and significant relationship between external social networking and organisational innovation)** is accepted**.** The null hypothesis **(H_{o8}: There is no relationship between external social networking and organisational innovation)** is, therefore, rejected.

Test on Hypothesis 9

H_{o9}: *There is no positive relationship between internal social networking and organisational innovation.*

H_{a9}: *There is a positive relationship between internal social networking and organisational innovation.*

According to Table 6.20 above internal social networking is positively and significantly correlated to external organisational innovation (correlation=0.577, p-value=0.000) and internal organisational innovation (correlation=0.342, p-value=0.000). Therefore, the alternative hypothesis **(H_{a9}: There is a positive and significant relationship between external social networking and organisational innovation)** is accepted. The null hypothesis **(H_{o9}: There is no positive relationship between social networking and organisational innovation)** is, therefore, rejected.

6.2.2.1.5 The relationship between networks and competitiveness

Results in Table 6.21 below show that both external (correlation=0.290, p-value=0.000) and internal social networking (correlation=0.399, p-value=0.000) are positively and significantly correlated with competitiveness.

Table 6-21: Correlations between social networking and competitiveness

Pearson's correlations			Social networking	
			External social networking ties	Internal social networking ties
Social networking	External social networking ties	Correlation	-	
		p-value		
		N		
	Internal social networking ties	Correlation	0.403**	
		p-value	0.000	-
		N	484	
Competitiveness		Correlation	0.290**	0.399**
		p-value	0.000	0.000
		N	477	496

This finding seems to suggest that both internal and external social networking significantly influence the competitiveness of ECFs, as they have potential to: provide the mechanisms for the sourcing of niche markets to maximize value for the firm, render information on innovative production systems and allow for the internal and external sourcing of requisite skills for the firm. This finding on the significant influence of both internal and external networking is inconsistent with mainstream literature, where internal and external networking are considered differentially positioned to influence the competitiveness of firms.

A study conducted by Wu, Wang, Chen and Pan (2008) into the influence of internal resources (e.g., internal networking capabilities), external networks and the competitiveness of Taiwanese high-tech ventures during the growth stage revealed that trust among internal social networks (i.e., among firm members) is essential to competitiveness at the new venture start-up stage due to the high risk involved. However, as the firm mass produces in its growth stage, whether trust influences competitiveness more than resources become uncertain. In fact, their results indicate that the competitiveness of high-tech firms during the growth stage is determined by firm resources and the willingness of support firms to cooperate rather than the trust of internal networks per se.

It also turns out, as with the other sections above, that internal social networking is a stronger driver of various forms of innovation and competitiveness. This finding seems to emerge from the reality that the size, small operations and constrained budget of ECFs compel them to rely on their internal capacities (e.g., internal networks among co-workers and among workers and owner/managers) in their pursuit for organisational competitiveness but limit their ability to seek support from external collaborative partnerships and inter-venture linkages. This revelation is consistent with Lee, Lee and Pennings' (2001) findings on the influence of internal capabilities (e.g. internal networking, internal quality controls) and organisational linkages of 143 Korean business ventures to external entities on firm performance. Their results demonstrated that internal capabilities (e.g., internal social networking, technological capabilities and financial resources) are important predictors of competitiveness of products/services (i.e., organisational performance) as much as external linkages; alliance with other firms and venture capital companies significantly enhances product/service competitiveness.

Test on Hypothesis 10

H_{o10}: *There is no positive relationship between social networking and competitiveness.*

H_{a10}: *There is a positive relationship between social networking and competitiveness.*

The results of the Pearson's correlation analysis conducted revealed that external social networking is positively and significantly correlated with competitiveness (correlation=0.290, p-value=0.000). The same analysis revealed that internal social networking is also positively and significantly correlated with competitiveness (correlation=0.399, p-value=0.000)- see Table 6.20. Therefore, the alternative hypothesis **(H_{a10}: There is a positive and significant relationship between social networking and competitiveness)** is supported and the null hypothesis **(H_{o10}: There is no relationship between social networking and competitiveness)** is rejected.

6.2.2.1.6 The relationship between networks and firm performance

There is one latent factor (variable) that measures financial and five questionnaire items that measure non-financial firm performance of ECFs. The five items of non-financial firm performance of ECFs were not aggregated as they were on different time scales. A correlation analysis of these five items with the latent variables of social networking is carried out in this section.

Results in Table 6.22 below show that both external (correlation=0.213, p-value=0.000) and Internal social networking (correlation=0.194, p-value=0.000) positively and significantly affect financial performance, albeit with small effect size. Both internal and external social networking have positive and significant correlations with all the other non-financial measures of performance, with internal social networking having very small effect size on non-financial measures of performance (small correlations). The current study has already alluded to Lee, Lee and Pennings' (2001) study that affirmed a positive and significant correlation between internal networking, external networking and organisational performance.

Table 6-22: Correlations between social networking and firm performance

Pearson's correlations			Social networking		Financial performance	Non-financial performance				
			External social networking	Internal social networking		Employees joined in past 1 year	Employees joined in past 2 years	Employees joined in past 3 years	Employees joined in past 4 years	Employees joined in past 5 years
Social networking	External social networking ties	Correlation								
		p-value								
		N								
	Internal social networking ties	Correlation	0.403**							
		p-value	0.000							
		N	484							
Financial performance		Correlation	0.213**	0.194**						
		p-value	0.000	.000						
		N	470	490						
Non-financial performance	Employees joined in past 1 year	Correlation	0.214**	0.112*	0.486**					
		p-value	0.000	.012	.000					
		N	484	503	495					
	Employees joined in past 2 years	Correlation	0.227**	0.105*	0.376**	0.788**				
		p-value	0.000	.018	0.000	0.000				
		N	480	500	494	508				
	Employees joined in past 3 years	Correlation	0.255**	0.047	0.416**	0.659**	0.894**			
		p-value	0.000	.298	0.000	0.000	0.000			
		N	481	501	493	508	507			
	Employees joined in past 4 years	Correlation	0.269**	0.094*	0.364**	0.656**	0.893**	0.918**		
		p-value	0.000	.036	0.000	0.000	0.000	0.000		
		N	481	501	494	509	507	507		
	Employees joined in past 5 years	Correlation	0.277**	0.157**	0.350**	0.683**	0.880**	0.848**	0.927**	
		p-value	0.000	.000	0.000	0.000	0.000	0.000	0.000	
		N	481	501	494	509	507	507	509	

It is interesting to note that, this time around external social networking has a bigger effect size on financial performance. This could be due to the centrality of dense external networks to competitive advantage, creating or adding capabilities of the firm compared to 'satisficing' business conditions that may be met and maintained through the exclusive use of internal capabilities. This view is supported by extant literature. In a study that sought to determine the optimal combination of competitive strategy and network structure that maximizes firm performance, Andrevski (2009) explored the largest 125 American firms from computers and electronics industries that initiated 11,075 competitive actions and revealed that the structure of external networks provides advantageous access to external resources that can both complement (enhance) the internal capabilities of the firm and substitute for the internal capabilities that a firm is lacking. Demonstrating the perceived superiority of external networks, Andrevski's (2009) findings demonstrate that, while firms with inferior internal capabilities can benefit more from a sparse network structure, a dense network

structure is considerably beneficial to firms with superior advantage-creating or advantage-enhancing capabilities.

Test on Hypothesis 11

H_{o11}: Social networking does not positively influence firm performance.

H_{a11}: Social networking positively influences firm performance.

The correlation analysis performed revealed that external social networking positively and significantly affects firm performance (correlation=0.213, p-value=0.000). Internal social networking positively and significantly affects firm performance (correlation=0.194, p-value=0.000) with small effect size (see Table 6.22). Based on this evidence, the alternative hypothesis **(H_{a11}: Social networking positively and significantly influence firm performance**) is supported and the null hypothesis **(H_{o11}: Social networking does not influence firm performance)** is rejected.

6.2.2.1.7 The relationship between innovation and competitiveness

Innovation was measured in various forms already discussed. The relationships between these various forms of innovation and competitiveness are discussed and presented in this section.

PRODUCT/SERVICE INNOVATION AND COMPETITIVENESS

According to Table 6.23 below, both forms of product/service innovation are positively and significantly correlated to competitiveness, with external product/service networking (correlation=0.556, p-value=0.000) being of much larger effect size than internal networking (correlation=0.397, p-value=0.000). This finding seems logical and well placed as the affiliations of a firm to strong external networks may positively impact the external visibility and national/regional or global marketing of its products/services, which impacts product/service competitiveness of the firm.

Table 6-23: Correlation between product innovation and competitiveness

Pearson's correlations			Product/service innovation	
			External networking and product/service innovation	Internal networking and product/service innovation
Product/service innovation	External Networking and product/service innovation	Correlation	-	
		p-value		
		N		
	Internal Networking and product/service innovation	Correlation	0.602**	
		p-value	0.000	-
		N	503	
Competitiveness		Correlation	0.556**	0.397**
		p-value	0.000	0.000
		N	494	499

Research reports that supernormal returns from product/service innovation (itself a measure of competitiveness) are a consequence of a firm's membership in a structurally favourable industry (Klepper, 1996; Eloranta & Turunen, 2015). Similarly, external network forces of competitiveness such as the bargaining power of buyers, bargaining power of suppliers, and rivalry among industry incumbents are considered to determine the competitiveness of a firm, an industry or sub-segment of an industry (Porter, 2008).

Test on Hypothesis 12

H_{o12}: *There is no positive relationship between product/service innovation and competitiveness.*

H_{a12}: *There is a positive relationship between product/service innovation and competiveness.*

The correlation analysis performed highlights that internal product/service innovation is positively and significantly related to competitiveness (correlation=0.397, p-value = 0.000). External product/service innovation is also positively and significantly correlated to competitiveness (correlation=0.556, p-value=0.000)- see Table 6.23. Overall, external product/service innovation has a larger effect size on competiveness than internal product/service innovation. The alternative hypothesis **(H_{a12}: There is a positive relationship between product/service innovation and competiveness)** is

supported while the null hypothesis **(H_{o12}: There is no positive relationship between product/service innovation and competitiveness)** is rejected.

PROCESS INNOVATION AND COMPETITIVENESS

Results in Table 6.24 below show that both forms of process innovation are positively and significantly correlated to competitiveness, with external process networking (correlation=0.529, p-value=0.000) being of much larger effect size than internal process networking (correlation=0.282, p-value=0.000). While external process innovation could be tied to the knowledge exchange and the collaborative processes within external networks that give rise to better systems and processes, this finding does not seem to cohere with contemporary literature.

Table 6-24: Correlation between process innovation and competitiveness

Pearson's correlations			Process innovation	
			External networking and process innovation	Internal networking and process innovation
Process innovation	External networking and process innovation	Correlation p-value N	-	
	Internal networking and process innovation	Correlation p-value N	0.383** 0.000 514	-
Competitiveness		Correlation p-value N	0.529** 0.000 502	0.282** 0.000 501

In view of the controversy over the strength of the multilevel antecedents of competitiveness, Camisón and Forés (2015) interrogated both the structural characteristics of the general and competitive environment (external factors), and the firm-specific resources and capabilities (internal factors such as internal process innovation) of 364 Spanish firms in the tourism sector. Their findings support the view that firms' capabilities and tangible resources (e.g., internal process networking, capabilities and strategy selection) are more important than environment effects (e.g., industrial or regional networks). Although the external factors involved did not necessarily target external process innovation, the study mentions under geographical influence (an external variable) how a number of supporting firms or sectors related to the firm activity can generate competitiveness by exploiting certain economic

advantages. This concept of *external economies* is closely tied to the forging of soft networks and ties that can shape external process innovations.

Test on Hypothesis 13

H_{o13}: *Process innovation positively influences competitiveness.*

H_{a13}: *Process innovation does not positively influence competitiveness.*

The correlation analysis revealed that external process innovation is positively and significantly correlated to competitiveness (correlation=0.529, p-value=0.000). Internal process innovation is positively and significantly correlated to competitiveness (correlation=0.282, p-value=0.000)- see results in Table 6.24. The alternative hypothesis **(H_{a13}: Process innovation positively and significantly influences competitiveness)** is supported and the null hypothesis **(H_{o13}: Process innovation does not influence competitiveness)** is rejected.

MARKETING INNOVATION AND COMPETITIVENESS

Results in Table 6.25 show that both forms of marketing innovation are positively and significantly correlated to competitiveness, with external marketing innovation (correlation=0.666, p-value=0.000) being of a slightly larger effect size than internal marketing networking (correlation=0.553, p-value=0.000). The results of a benchmarking study of mechanisms used in corporate CI operations to co-ordinate strategic and tactical intelligence for the marketing and sales of five best practice firms (Amoco, Boehringer Ingelhei, Dow Chemical, MetLife and SBC) conducted by Miree and Prescott (2001) suggested that companies employed both internal and external resources and capabilities in the fulfilment of their marketing and sales endeavours, suggesting the complementarity of these marketing forms.

Table 6-25: Correlation between marketing innovation and competitiveness

Pearson's correlations			Marketing innovation	
			External networking and marketing innovation	Internal networking and marketing innovation
Marketing innovation	External networking and marketing innovation	Correlation		
		p-value	-	
		N		
	Internal networking and marketing innovation	Correlation	0.649**	
		p-value	0.000	-
		N	504	
Competitiveness		Correlation	0.666**	0.553**
		p-value	0.000	0.000
		N	498	496

The use of internal (i.e., use of innovative work teams, CI human resource job design and allocation, the planning process, interaction, dialogue) and external (human intelligence networks) resources and capabilities provided a sophisticated means of coordinating strategic and tactical intelligence in the sale and marketing functions throughout the firm. The evidence of complementarity of internal and external marketing initiative seems to contradict the study's findings about the strength of external marketing innovation over internal marketing innovation. The difference in findings can be attributed to the variance in the national and industrial sector context of the current study and theirs, including the varying mandates of the companies involved.

Test on Hypothesis 14

H_{o14}: *Marketing innovation does not positively influence competitiveness.*

H_{a14}: *Marketing innovation positively influences competitiveness.*

The correlation analysis revealed that external marketing innovation is positively and significantly correlated to competitiveness (correlation=0.666, p-value=0.000). Similarly, internal marketing innovation is positively and significantly correlated to competitiveness (correlation=0.553, p-value=0.000). External marketing innovation has a slightly larger effect size on firm competitiveness than internal marketing

innovation (see Table 6.25 above). Therefore, the alternative hypothesis **(H_{a14}: Marketing innovation positively and significantly influences competitiveness)** is supported and the null hypothesis **(H_{o14}: Marketing innovation does not influence competitiveness)** is not supported.

ORGANISATIONAL INNOVATION AND COMPETITIVENESS

Results in Table 6.26 below show that both forms of organisational innovation are positively and significantly correlated to competitiveness, with external organisational process networking (correlation=0.470, p-value=0.000) being of very similar effect size to internal organisational innovation (correlation=0.457, p-value=0.000).

It can be assumed that, consistent with the complementarity of internal resources and capabilities (i.e., the Resource Based View) and environmental variables (e.g., firms' external knowledge acquisition, firm's external collaborations) that ECFs are increasingly striving to draw on both forms of organisational innovation (external organisational process networking and internal organisational innovation) to capitalize on the economic and competitive advantages of both innovations. In its discussion of inside and outside forces for organisational change, Boundless (2015) expresses the importance of understanding external influences of firm competitiveness (e.g., competitive dynamics including macroeconomics, technological evolution, globalization, new legislation) and internal influences (e.g., restructuring, intrapreneurship and new management).

Table 6-26: Correlations between organisational innovation and competitiveness

Pearson's correlations			Organisational innovation	
			External networking and organisational innovation	Internal networking and organisational innovation
Organisational innovation	External networking and organisational innovation	Correlation		
		p-value	-	
		N		
	Internal networking and organisational innovation	Correlation	0.296**	
		p-value	0.000	-
		N	504	
Competitiveness		Correlation	0.470**	0.457**
		p-value	0.000	0.000
		N	498	495

External organisational process networking would target dealing with and adjusting to external competitors, collaborators and products in the competitive landscape, such as new incumbents, networking alliances, mergers and acquisitions, and new product offerings, through a company's external business strategy and operations (Boundless, 2015). Internal organisational process networking may revolve around organisational restructuring, which emphasizes team work, collaborations and systemic changes that alter the organisation's existing structure to adapt to the development of new strategic business units, new product lines, or global expansion.

Test on Hypothesis 15

H_{o15}: *Organisational innovation does not positively influence competitiveness.*

H_{a15}: *Organisational innovation positively influences competitiveness.*

The correlation analysis revealed that external organisational innovation is positively and significantly correlated to competitiveness (correlation=0.470, p-value=0.000). Internal organisational innovation is positively and significantly correlated to competitiveness (correlation=0.457, p-value=0.000) (see results in Table 6.26 above). The alternative hypothesis **(H_{a15}: Organisational innovation positively and significantly influences competitiveness)** is supported and the null hypothesis **(H_{o15}: Organisational innovation does not influence competitiveness)** is rejected.

6.2.2.1.8 The relationship between competitiveness and firm performance

The correlation results, presented in Table 6.27 below, show that there is a significant and positive correlation between competitiveness and firm performance but the correlation of a very small effect size (correlation=0.189, p-value=0.000).

Table 6-27: Correlation between organisational innovation and firm performance

Pearson's correlations		Competitiveness	Firm performance
Competitiveness	Correlation p-value N	-	
Firm performance	Correlation p-value N	0.189** 0.000 485	-

The regression results, presented in Table 6.28 below, also show that when considered together, the innovation variables that influence firm performance significantly are external social networking ties (parameter=0.200, t=3.406, p-value=0.001), internal networking and product/service innovation (parameter=0.340, t=2.748, p-value=0.006), external networking and organisational innovation (parameter=0.426, t=4.420, p-value=0.000) and internal networking and marketing innovation (parameter=-0.312, t=-2.687, p-value=0.008) which actually negatively affect firm performance.

Table 6-28: Regression analysis of all innovation variables and firm performance

	Dependent variable: Firm performance	Parameter estimates		t-tests		
		Parameter	Std. Error	t	Sig.	Comment
Predictors (Independent variables)	(Constant)	0.820	0.452	1.817	0.070	
	External social networking ties	0.200	0.059	3.406	0.001	Significant
	Internal social networking ties	0.009	0.128	0.068	0.946	
	External networking and product/service innovation	-0.170	0.121	-1.401	0.162	
	Internal networking and product/service innovation	0.340	0.124	2.748	0.006	Significant
	External networking and process innovation	0.113	0.080	1.411	0.159	
	Internal networking and process innovation	0.069	0.043	1.619	0.106	
	External networking and marketing innovation	-0.034	0.118	-0.286	0.775	
	Internal networking and marketing innovation	-0.312	0.116	-2.687	0.008	Significant but negative
	External networking and organisational innovation	0.426	0.096	4.420	0.000	Significant
	Internal networking and organisational innovation	-0.079	0.061	-1.293	0.197	

This finding corroborates Houghton, Smith and Hood's (2009) claim that there is a direct link between a single firm's social resources (in particular the firm's collaborative involvement in external networks) and the firm's strategic complexity, such as its innovative capabilities.

Test on Hypothesis 16

H_{o16}: *Competitiveness does not have a positive influence on firm financial performance.*

H_{a16}: *Competitiveness has a positive influence on firm financial performance.*

The correlation analysis performed revealed that competitiveness positively and significantly influences firm financial performance (correlation=0.189, p-value=0.000) (see Table 6.28 above). Based on this evidence, the alternative hypothesis **(H_{a16}: Competitiveness positively and significantly influences firm financial performance)** is supported and the null hypothesis **(H_{o16}: Competitiveness does not influence firm financial performance)** is rejected.

6.3 CONCLUSION

The descriptive and inferential statistics presented in this chapter offer insight into a number of dynamics in the construction sector, especially amongst ECFs. First, the domination of firm's owner/managers (78.9%) points to the size and survivalist orientation of most ECFs in South Africa, which necessitates the compression of the organisational structure through the infusion of multiple roles and responsibilities. This arrangement results in one or few nuclear functional units/portfolios and compression of hierarchical layers in organisational structures or reporting structure to cut on excessive overhead or company costs. Consequently, these ECFs end up multitasking and fail to learn adequately core activities of the trade or industry. Second, the modestly balanced representation of male and females with regard to the ownership and participation in ECFs, which is similar to Makhura's (2012) consolidated breakdown of emerging contractors by gender where 46% (female) and 54% (male) representation was reported, signifies a huge development and transition of the female gender.

Last, most of the internal network ties were considered important by most respondents, as the percentages agreeing or strongly agreeing were mostly above 80%. The significance of this finding, in line with the South African government local economic developmental goals, justifies Lekarapa and Root's (2014) study into the

informal social networks on three construction sites in an ethnically diverse area, to explore how these give rise to economic exclusion. The same study also found that artisans on these sites were mostly friends and neighbours with similar ethnic backgrounds, strongly suggesting that social relations facilitated the transfer of information around work opportunities (Lekarapa & Root, 2014) and can consequently improve local economic conditions. Chapter 7 of this study will provide the main findings in summary of what has already been discussed in the current chapter. Furthermore, conclusions and recommendations will be presented in Chapter 7 for policy making and areas for further research suggested.

CHAPTER 7: CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

"Through the use of methods and techniques that are scientifically defendable, we may come to conclusions that have a high probability of being justifiable in a court of law if so needed"

(Welman & Kruger [2001] in Dzansi [2004])

7.1 INTRODUCTION

The previous chapter presented, interpreted and discussed the empirical findings of the current study including the various relationships among internal and external social networks, innovation, competiveness and emerging construction firms' (ECFs) performance were presented. This process allowed for a detailed critique, comparing and contrasting the empirical findings with those from mainstream literature to render a more context-informed theoretical and empirical contribution to the existing body of literature on these issues. This chapter presents conclusions and recommendations on the study. The core objective of this research was to explore the impact of social networks on innovation, competitiveness and firm performance amongst ECFs in the Free State.

This chapter recaps the current study's objectives, provides conclusions (both from literature and empirical study), and offers recommendations arising out of the study and implications for future research. The current chapter seeks to draw conclusions to the arguments made in Chapter 1 and provide an answer to the main problem identified also in the same chapter.

7.2 STUDY OVERVIEW

The primary aim of this research was to undertake an evaluation of how social networks (as one of the various components of social capital) can be utilized to infuse innovation, competitiveness and thereby firm performance of ECFs in South Africa. The construction industry is one of the most important economies in the world and as

such the sustainability of the South African construction industry, its development and its growth are key concerns for government. Small businesses, by default, lack the necessary skills and capital to compete with their big counterparts. Such a deficiency or lack is a serious threat for the survival of these small businesses. This study maintains that for these small businesses to survive, grow, be competitive and enjoy a better firm performance, adoption of social networks and innovation are key ingredients.

7.3 CONCLUSIONS BASED ON LITERATURE REVIEW

In order to develop the theoretical as well as the conceptual frameworks for the current study, an extensive literature review was conducted. An engagement of extant literature provided the following for the study.

7.3.1 THE RELATIONSHIP BETWEEN SOCIAL NETWORKS AND INNOVATION

One of the main findings from mainstream literature (Alsaaty, 2011; Robinson & Stubberud, 2012) is that accumulated knowledge within the firm could translate into the firm's capabilities that support innovation. Internal networking, that is, bonding social capital, provides a conducive environment for a firm's development of capabilities, which in turn stimulates innovation (Robinson & Stubberud, 2012). This finding, is key for ECFs because most projects are undertaken by locals, who are familiar with one another, and such a familiarity can only serve as a breeding ground for innovative ideas. Alsaaty (2011:4) argues that the employees (managers or skilled workers) constitute sources of new ideas which, when implemented, could result in innovation in the organisation.

Another major finding is that outsiders (external networking) may provide useful sources of vital information required by firms to pursue innovative strategy, and collaborations with consumers, suppliers and other firms often constitute valuable platforms for crafting and pursuing innovative strategies for enhanced competitiveness and profitability, especially in small firms (Alsaaty, 2011; Robinson & Stubberud, 2012). This finding supports the idea of joint ventures, a key strategy used by most

ECFs in modern, sophisticated and highly capitalized projects, among small businesses in order to remain competitive.

7.3.2 SOCIAL NETWORKS AND FIRM PERFORMANCE

A key finding from previous studies (Burt, 1992; Lin, 2001) and extant literature (Ofori & Sackey, 2010; Covin & Lumpkin, 2011; Miller, 2011) reveals a link between firm performance and social capital. According to Burt's (1992) theory of structural autonomy, the profitability of businesses increases in particular thanks to the diversification of their customer and supplier bases. Burt (1992:19) opines that pure structuralism enables actors (firms) to increase their network capacity and consequently introduces actors (firms) to new customers they would not necessarily have met.

It would appear, though, that "entrepreneurial activity is embedded in network relationships that direct resource flows to entrepreneurs who are somehow better connected". Thus, a firm's entrepreneurial orientation will be determined by its attempts at innovativeness, risk taking, and pro-activeness (Covin & Lumpkin, 2011: 855; Miller, 2011:874). Similarly, results of a study which assessed the functions of social capital within Ghanaian organisations suggested that three determinate variables of social capital-reciprocity, trust and institutional ties-have the most significant positive relationship with organisational performance (Ofori & Sackey, 2010:71). This was further corroborated by the study conducted by Stam and Elfring (2008), which also revealed that there is a link between social networks and the degree of successful economic performance of firms and the specific network or performance measures.

7.3.3 INNOVATION AND FIRM PERFORMANCE

A key finding from mainstream literature (Ncwadi & Dangalazana, 2005; Masso & Vahter, 2007; Mansury & Love, 2008) suggests that small businesses cannot outperform their big counterparts who have money and assets to perform, but their

innovative and collaborative ability can actually give them an added advantage. Studies (Mohnen & Therrien, 2003; Ncwadi & Dangalazana, 2005; Masso & Vahter, 2007; Mansury & Love, 2008; Rosli & Sidek, 2013) found that a positive relationship exists between innovation and firm performance. Rosli and Sidek (2013:9) found that product and process innovation positively and significantly impacted firm performance. In order to perform well economically, it is apparent that ECFs need to innovate. Innovation has been found to be a critical factor for fueling long-term sustainable economic growth and, concomitantly, employment creation and poverty alleviation in all economies, both developed and developing (Gyekye et al., 2012:915).

7.4 CONCLUSIONS BASED ON THE HYPOTHESES

In order to achieve the aim of the study various hypotheses, advanced in Chapter 1 (section 1.5.3.2), were tested using Pearson's correlation method and percentage analysis. The following conclusions were arrived at based on the hypotheses tested:

Conclusion on hypothesis 1

H_{o1}: *External social networking is not positively related to product/service innovation.*

H_{a1}: *External social networking is positively related to product/service innovation.*

According to Table 6.16, external social networking is positively and significantly correlated to external product/service innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***H_{a1}: External social networking is positively related to product/service innovation*** can be accepted.

Therefore, it is concluded that that external social networking impacts positively on product/service innovation.

Conclusion on hypothesis 2

H_{o2}: *There is no positive relationship between internal social networking and product/service innovation.*

H_{a2}: *There is a positive relationship between internal social networking and product/service innovation.*

According to Table 6.17 internal social networking has been found to be positively and significantly correlated to internal product/service innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between internal social networking and product/service innovation*** can be accepted.

Therefore, it is concluded that that internal social networking impacts positively on product/service innovation.

Conclusion on hypothesis 3

H_{o3}: *There is no positive relationship between internal and external social networking.*

H_{a3}: *There is a positive relationship between internal and external social networking.*

The results in Table 6.18 illustrate that internal and external social networking variables are positively and significantly correlated meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between internal and external social networking*** can be accepted.

Therefore, the conclusion is that internal and external social networking are positively related.

Conclusion on hypothesis 4

H_{o4}: *There is no positive relationship between external social networking and process innovation.*

H_{a4}: *There is a positive relationship between external social networking and process innovation.*

According to Table 6.19 a very high, positive and significant correlation was established between external social networking and internal process innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between external social networking and process innovation*** can be accepted.

Therefore, it is concluded that that external social networking positively influences internal process innovation.

Conclusion on hypothesis 5

H_{o5}: *There is no positive relationship between internal social networking and process innovation.*

H_{a5}: *There is a positive relationship between internal social networking and process innovation.*

The Pearson's correlation analysis performed revealed that internal social networking is positively and significantly correlated to process innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between internal social networking and process innovation*** can be accepted.

Therefore, it is concluded that internal social networking positively influences process innovation.

Conclusion on hypothesis 6

H_{o6}: *There is no positive relationship between external social networking and marketing innovation.*

H_{a6}: *There is a positive relationship between external social networking and marketing innovation.*

The performance of Pearson's correlation analysis revealed that external social networking is positively and significantly correlated to external marketing innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between external social networking and marketing innovation*** can be accepted.

Therefore, it is concluded that external social networking has a positive influence on marketing innovation.

Conclusion on hypothesis 7

H_{o7}: *There is no positive relationship between internal social networking and marketing innovation.*

H_{a7}: *There is a positive relationship between internal social networking and marketing innovation.*

The performance of Pearson's correlation analysis revealed that internal social networking is positively and significantly correlated to marketing innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between internal social networking and marketing innovation*** can be accepted.

Therefore, it is concluded that internal social networking has positive influence on marketing innovation.

Conclusion on hypothesis 8

H_{o8}: *There is no relationship between external social networking and organisational innovation.*

H_{a8}: *There is a relationship between external social networking and organisational innovation.*

Results in Table 6.19 shows that external social networking is positively and significantly correlated to organisational innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a relationship between external social networking and organisational innovation*** can be accepted.

Therefore, it is concluded that external social networking positively influences organisational innovation.

Conclusion on hypothesis 9

H_{o9}: *There is no positive relationship between internal social networking and organisational innovation.*

H_{a9}: *There is a positive relationship between internal social networking and organisational innovation.*

The performance of Pearson's correlation analysis (Table 6.22) indicates internal that social networking is positively and significantly correlated to organisational innovation meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between internal social networking and organisational innovation can be accepted***.

Therefore, it is concluded that internal social networking influences organisational innovation.

Conclusion on hypothesis 10

H_{o10}: *There is no positive relationship between social networking and competitiveness.*

H_{a10}: *There is a positive relationship between social networking and competitiveness.*

The results of the Pearson's correlation analysis conducted revealed that social networking is positively and significantly correlated with competitiveness meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between social networking and competitiveness*** can be accepted.

Therefore, it is concluded that social networking positively influences competitiveness.

Conclusion on hypothesis 11

H_{o11}: *Social networking does not positively influence firm performance.*

H_{a11}: *Social networking positively influences firm performance.*

The correlation analysis performed also revealed that social networking positively and significantly affects firm performance (see Table 6.24 of the current study) meaning, the null hypothesis is not supported hence the alternate hypothesis ***Social networking positively influences firm performance*** can be accepted.

Therefore, it is concluded that social networking positively influences firm performance.

Conclusion on hypothesis 12

H_{o12}: *There is no positive relationship between product/service innovation and competitiveness.*

H_{a12}: *There is a positive relationship between product/service innovation and competiveness.*

The correlation analysis performed highlights that product/service innovation is positively and significantly related to competitiveness (see Table 6.25 of the current study meaning, the null hypothesis is not supported hence the alternate hypothesis ***There is a positive relationship between product/service innovation and competiveness*** can be accepted.

Therefore, it is concluded that product/service innovation positively influences competiveness.

Conclusion on hypothesis 13

H_{o13}: *Process innovation does not positively influence competitiveness.*

H_{a13}: *Process innovation positively influences competitiveness*.

The correlation analysis revealed that process innovation is positively and significantly correlated to competitiveness (see Table 6.20) meaning, the null hypothesis is not supported hence the alternate hypothesis ***Process innovation positively influences competitiveness*** can be accepted.

Therefore, it is concluded that process innovation positively influences competitiveness.

Conclusion on hypothesis 14

H_{o14}: *Marketing innovation does not positively influence competitiveness.*

H_{a14}: *Marketing innovation positively influences competitiveness*.

The correlation analysis revealed that marketing innovation is positively and significantly correlated to competitiveness (see Table 6.16) meaning, the null

hypothesis is not supported hence the alternate hypothesis ***Marketing innovation positively influences competitiveness*** can be accepted.

Therefore, it is concluded that marketing innovation positively influences competitiveness.

Conclusion on hypothesis 15

H_{o15}: *Organisational innovation does not positively influence competitiveness.*

H_{a15}: *Organisational innovation positively influences competitiveness.*

The correlation analysis revealed that organisational innovation is positively and significantly correlated to competitiveness (see Table 6.21) meaning, the null hypothesis is not supported hence the alternate hypothesis ***Organisational innovation positively influences competitiveness*** can be accepted.

Therefore, it is concluded that organisational innovation positively influences competitiveness.

Conclusion on hypothesis 16

H_{o16}: *Competitiveness does not have a positive influence on firm financial performance.*

H_{a16}: *Competitiveness has a positive influence on firm financial performance.*

The correlation analysis performed revealed that competitiveness positively and significantly influences firm financial performance (see Table 6.26) meaning, the null hypothesis is not supported hence the alternate hypothesis ***Competitiveness has a positive influence on firm financial performance*** can be accepted.

Therefore, it is concluded that competitiveness has a positive influence on firm financial performance.

7.5 THEORETICAL CONTRIBUTION

7.5.1 UNIQUE RESOURCES AND SUPERIOR CAPABILITIES

One of the main findings is that external and internal social networking are positively and significantly correlated, indicating the importance of drawing on both capabilities to maximize the performance of the ECFs. This is consistent with the popular notion of the Resource Based View that high performance oriented firms tend to possess a set of unique resources, develop superior capabilities that promote the growth as well as take advantage of those competencies (Ferreira, Azevedo & Ortiz, 2011). Although internal and external social networks can be considered important resources for the optimization of performance, the same way ECFs' capacity to network internally and externally can be conceived as vital capabilities, the aforementioned resources are not necessarily unique nor are these later capabilities necessarily superior or inimitable as required by the original RBV. As such, the findings on the correlation between internal and external networking moderately fit the RBV's canonical principles.

7.5.2 RESOURCE HETEROGENEITY AND RESOURCE IMMOBILITY

Another interesting dynamic, which demonstrates the modest complementarity of findings to the RBV, is the almost balanced influence of innovation variables (i.e., external social networks-innovation and internal social networks-innovation) on financial performance. The regression results (see Table 6.28) illustrate that the innovation variables that influence financial performance significantly are:

- External social networking ties (parameter=0.200, t=3.406, p-value=0.001).
- External networking and organisational innovation (parameter=0.426, t=4.420, p-value=0.000).
- Internal networking and product/service innovation (parameter=0.340, t=2.748, p-value=0.006).
- Internal networking and marketing innovation (parameter=-0.312, t=-2.687, p-value=0.008) which actually negatively affect financial performance.

There is almost a balanced presentation of both external and internal social networking-innovation variables on performance. The Resource Based View, which

explains the source of sustained competitive advantage of firms (Porter & Millar, 1985; Ehlers & Lazenby, 2011), is founded on two underlying assertions: firm-specific resource heterogeneity and resource immobility (Soto-Acosta & Meron˜o-Cerdan, 2008). Partly consistent with RBV, the ECFs' resource heterogeneity manifests in the capacity of the firm to combine internal and external networks to optimize innovation and performance of the firms, assuming that other firms (e.g., larger firms) cannot capitalize on these distinct resources as well.

However, real resource heterogeneity lies not only in heterogeneous distribution of resources and capabilities possessed by competing firms, but rather in such resources becoming a source of competitive advantage due to their being valuable, rare, difficult to imitate, and not substitutable by other resources (Barney, 1991; Wernerfelt, 1984; Bridoux, 2004; Ehlers & Lazenby, 2011). If we consider the rareness and inimitability of external social networks of ECFs to be founded on their informal, personal and intimate nature as well as their being founded on Ubuntu values of humaneness, solidarity and comradeship, then there is room to regard them as a source of competitive advantage. On the contrary, if we consider internal and external networks to depend on impartial, meritocratic and impersonal ties tied to the 'bounded rationality' of the organisations, there is no scope for regarding internal and external social networks as a source of competitive advantage as any organisation could create them with limited barriers to involvement by competitors.

Resources and capabilities are also considered to be a source of sustained competitive advantage if they are immobile, that is, differences may be long-lasting when protected by barriers to imitation (Mahoney & Pandian, 1992) or isolating mechanisms (Rumelt, 1984; Soto-Acosta & Meron˜o-Cerdan, 2008). In the case of this study, there might be few/no barriers to replication of internal and external social ties for ECFs to optimize their competitive advantage over large corporations. Anecdotal evidence suggests that a sizable number of large firms' deals are struck through informal networks and ties forged at informal places such as golf courses and poker games, while the sealing of deals in the board room can just be considered a formality.

7.5.3 COMPLEMENTARITY AND ALIGNMENT OF RESOURCES AND CAPABILITIES

The researcher's main interpretation is that far from conceiving as the main sources of competitive advantage for ECFs as laying in the inimitability, rareness and barriers to entry for competitors as postulated by RBV, we inferred that the capacity of the organisation to integrate and align unique combinations of internal and external social networking with particular forms of innovation increased the competitive advantage of the ECFs. For instance, external networks were closely aligned with organisational innovation, while internal networking was closely coupled with product/service innovation (see Table 6.27). This interpretation coheres with Houghton, Smith and Hood's (2009) claim that there is a direct link between a single firm's social resources (in particular the firm's collaborative involvement in external networks) and the firm's strategic complexity, such as its innovative capabilities.

The researcher's interpretation also corroborates earlier findings by April (2004) whose study examined how IT enables sustainable competitive advantage among South African Personal Financial Services (Assurance) Firms (1999-2003). One of his main findings was the concept of Complementary Resource Combinations (CRCs), which posits that IT assets and resources in themselves were not the bases of establishing "rarity", but become sources of competitive advantage when they combined with other factors within the firm to create barriers to imitation. In our case, both internal and external social networks were tied to particular forms of innovation to optimize firm performance.

7.5.4 TRANSITORY NATURE OF BONDING AND BRIDGING CAPITAL

As a central resource for organisational operation, bonding social capital (exclusive social networks) and bridging social capital (inclusive social networks) are essential in creating economic success and value (Putnam, 1993). While bonding capital could be attributed to the internal social networking due to the high intensity, frequency and strength of such social networks, including their exclusivity to those outside the organisations, bridging social capital could be associated with external networks of ECFs due to the sporadic nature and weakness of these ties. That said, the informal,

personal and intimate nature of external social networks of ECFs can also make them exclusive and closely knit, thus transforming them from bridging into bonding ties. Our study, therefore, postulates the flexible and fluid nature of ECFs' ties, which complicates their characterizations as either bonding or bridging social capital. Hence, ECFs' ties are transitory, non-fixed and mutable, traversing the bonding and bridging social capital continuum.

The study also demonstrated that both bonding and bridging social capital differentially shapes different innovations types and ultimately, firm performance (see Table 6.21). In total the emphasis on the internal forces of the firm as the main sources of competitive advantage (see Penrose, 1959; Miller & Shamsie, 1996; Ferreira et al., 2010) could not be sufficiently supported, as both internal social capital and external social capital were implicated in firms' innovativeness and ultimately performance.

7.5.5 INNOVATION IMPLEMENTATION FRAMEWORK FOR ECFS

Drawing on the RBV of a firm, social exchange theory of social capital and the empirical findings of the current study an implementation framework (see *Figure 7.1 below*), for promoting innovation through social networks among ECFs in the industry is provided.

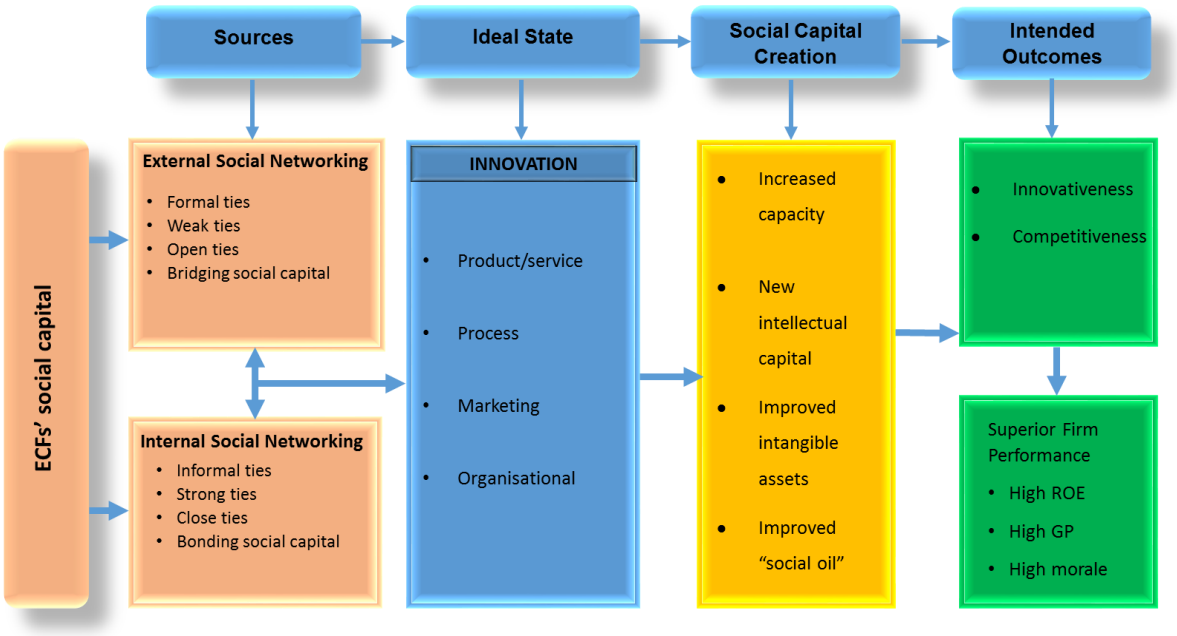


Figure 7-1: Framework for ECFs promoting innovation through social networks

Figure 7.1 above provides the implementation guidelines that practitioners (government, academics and owner/managers) should follow for promoting innovation through social networks among ECFs in order to improve their competitiveness and performance. The implementation guidelines are embedded under two cardinal pillars which results in the creation of a social capital and an intended outcome namely:

Sources of Social Capital

The key foundations of social capital are derived from the current study's area of interest (researcher has already indicated in Figure 1.2 that other dimensions of social capital such as reciprocity, trust, norms, etc. do not form part of the study) namely:

- **External Social Networking Ties (ESNT)**: Bridging social capital refers to links that extend beyond a shared sense of identity serving as a platform for outside influence in helping such small groups accept new ideas and move ahead (Burt, 2007:7). The ability to "bridge" allows different groups some advantages in the creation of social capital for both the individuals who bridge the networks and their networks in general (Dahal & Adhikari, 2008:5; Laser & Leibowitz, 2009:88). ECFs' ability to "bridge" should enable them to gain better knowledge and intellectual capital, which ECFs would not necessarily gain in closed or bonded networks.

- **Internal Social Networking Ties (ISNT)**: Mainstream literature (Putnam, 1993:129; Burt, 2007:38; OECD, 2007:78; Purdue, 2007:10; Laser & Leibowitz, 2009:97) maintain that bonding social capital (or exclusive social networks) is about the closeness of members of very small groups or organisations that serves as linkages between actors within the collectivity and facilitates the accomplishment of collective goals (Coleman, 1990:243; Fukuyama, 1995: 29, Putnam, 1995:665). ECFs should be advised that advancement of collective goals will be more important than individual firms' achievement.

Ideal State

Given the slow economic growth in the country, which is far below the government's vision 2030 and unemployment reduction target of 6% (The Presidency, 2012), the ideal state for ECFs and their subsequent survival can only be attributed to innovation which manifests itself in the following dimensions:

- **Product/service innovation:** Modern era contractors (including ECFs) are beginning to realize that product/service innovation is a difficult process, driven by advanced technologies, changing customer needs, shortening product life cycles and increased global competition. For instant success, product/service innovation must involve strong interaction both within the firm and between the firm and its customers, and suppliers and customers must be willing and able to buy the new products or services (Valmohammadi, 2012) which will necessitate advancement of social networks amongst all actors.

- **Process innovation:** Process innovation is the implementation of a new or significantly improved production or delivery method (OECD, 2006). This includes significant changes in techniques, equipment and software. ECFs are to embrace quality function deployment and business process reengineering through process innovation in their approach.

- **Marketing innovation:** Marketing innovation is concerned with improving the mix of target markets and how chosen markets are best served (OECD, 2006:48). A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations target addressing customer needs better, opening up new markets, or newly positioning a firm's product on the market with the intention of increasing firm's sales. As indicated in section 7.7.1.5 below, the empirical findings revealed limited international presence of ECFs in foreign markets. This is ironic given the fact that external social networking had positive and significant correlations with all other non-financial measures of performance, with a higher effect size on these measures than with internal social networking.

- **Organisational innovation:** The implementation of a new organisational method in the firm's business practices, workplace organisation or external relations (OECD, 2006:49) has become a reality for ECFs who may not have the capital to compete with their big counterparts. For example, construction sites are used to a more projectized organisational structure as opposed to a normal functional organisational structure. Through organisational innovation ECFs may opt for a more matrix type of an organisational structure where ECFs can draw on the services of employees who would not normally be directly engaged in a project and are generally demotivated for not being fully utilized. This view is also corroborated by Hansen and Birkinshaw (2007) when they concluded that organisational innovation can increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction, gaining accesses to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies.

The study's framework takes an integrative view of social capital, where both the external and internal sources (referred to in the study as dimensions of social capital) are recognized. Based on the findings the framework implies that both the external and internal social networks are a pre-requisite for innovation that ultimately manifests itself in the form of increased capability, new intellectual capital, improved intangible assets and improved social oil. The final intended outcomes are innovative and competitive ECFs that enjoy superior firm performance.

7.6 PRACTICAL CONTRIBUTION

Given that internal and external social networks are positively and significantly correlated, it can be inferred that ECFs can benefit significantly from the exploitation of both internal and external social networking if they are to optimize their performance. The decision to act entrepreneurially was considered to be an outcome of the internal organisational context as much as it was influenced by the entrepreneur's informal social ties which, impacted entrepreneurial choices by providing powerful external role models that exert social influence across the members of the network (Kacperczykf, 2008). Therefore, engagement in entrepreneurial activity

cannot be conceived as a consequence of the isomorphism of internal organisational conditions alone but rather a product of specific internal and external organisational competencies.

To the extent that internal social networking is a stronger driver of both external and internal organisational innovation than external social networking, ECFs could maximize their organisation-wide innovation if they were to invest considerably in their internal social networking compared to their external networks. Katz and Laser's (2003) study into the role of terms in the construction of effective intra-organisational networks suggests that strong internal ties are critical to the development of accurate cognitive frameworks, which are vital to the transfer of complex organisational knowledge.

Evidence from the study suggests that both external and internal social networking are positively and significantly correlated with competitiveness, but internal social networking is a greater driver of competitiveness than external social networking. This means that although ECFs can expand both their internal and external social networks as part of their competitive strategy, they may need to invest more material and financial resources into their internal social networks, as these have more influence on competitiveness than their external networks. This inward-looking approach as a basis for strategy may be a useful source of gaining competitive advantage and diversification (Foss & Knudsen, 2003; Bridoux, 2004) for small firms.

The findings revealed that internal social networking is a stronger driver of various forms of innovation and competitiveness than external social networking. This is consistent with the emphasis of most resource-based view researchers' choice on "look within the enterprise and down to the factor market conditions that the enterprise must contend with, to search for some possible causes of sustainable competitive advantages", holding constant all external environmental factors (Peteraf & Barney, 2003:312). While both external and internal social networking positively and significantly affect financial performance, external social networking had a greater effect on performance than the internal social networking. Some authors (Bridoux, 2004; April, 2004) demonstrate the importance of differentiation of firms through their application of complexity and diversification in servicing their customers' needs. Since

external social networking has a more significant effect on performance than internal networks, differentiation is key to improved firm performance. The ECFs' strategic entrepreneurial orientation may target differentiation-injection of resources into internal social networking to maximize innovation and competitiveness, and selective targeting of specific external social networking (rather than a blanket approach to investment in external social networks) to maximize firm performance.

The last interesting dynamic is that both internal and external social networking have positive and significant correlations with all the other non-financial measures of performance, with internal social networking having a very small effect size on non-financial measures of performance. Again, since external social networking has been considered to have lesser effects on various forms of innovation and effectiveness, but greater effect on non-financial performance (which is not an overriding motivation for ECFs' creation and sustenance), non-targeted approaches to investment in external social networks may be counter-productive.

7.7 RECOMMENDATIONS

7.7.1 STRATEGIC ENTREPRENEURIAL ORIENTATIONS

7.7.1.1 Advantage creation and advantage enhancing strategies

Since both internal and external social networking were considered to be positively and significantly correlated but internal social networking was reported to be a strong driver of innovation and competitiveness, ECFs may need to differentiate between competitive strategies that create competitive advantage and those that merely enhance such advantage. Andrevski's (2009) findings on the relationships among competitive strategy, alliance networks, and firm performance revealed that firms with superior *advantage-creating strategies* become embedded in sparse network structures and are more likely to form non-equity alliances in the future, whereas firms with strong *advantage-enhancing tendencies* become embedded in dense network structures with many equity-based alliances in the future. Since ECFs' internal social networks are stronger drivers of competitiveness, these firms may benefit from competitive strategies that emphasize value creation through internal social

networking and value-enhancement through external social networking. Advantage creating strategies may be created through collaborative team work, knowledge sharing and transactive interaction to be built into product, process, marketing and organisational innovation of ECFs.

7.7.1.2 Entrepreneurial strategy matching ECFs' competitive arena

The study revealed that although both the internal and external social networks both drive ECFs' competitiveness, internal social networks tend to have a stronger influence on competiveness than external social networks. The competitiveness of ECFs, therefore, is not an exclusive function of the latent entrepreneurial capacity of the owner/managers of ECFs but rather the opportunities created and barriers to overcome the firm's *external and internal competitive arena*.

The firm's external competitive arena consists primarily of customers, suppliers and competitors in the local marketplace, and the *internal competitive arena* consisting of the various customers, suppliers and competing entities that are part of the same organisation (Birkinshaw, Hood & Young, 2005). The ECFs managers' competitive strategy may involve adapting their entrepreneurial capacities to match and cohere with internal social networking in the internal competitive arena, and the external social networking to fit the external competitive arena of the domestic and international environment. In short, a business competiveness model that aligns the appropriate social networking capabilities of the firm to the appropriate competitive area and the entrepreneurial capability of the owner/managers will optimize ECFs' competitiveness.

7.7.1.3 Imputing service infusion into innovation dynamics of ECFs

While both external and internal social networking positively and significantly affects innovation, there is a need to make service infusion a vital component of the organisation's service/product innovation strategy. Since service failure is often cited as one of the reasons for the collapse of ECFs and service infusion is often cited as critical to gaining possible service-based competitive advantage (Baines et al., 2009; Eloranta & Turunen, 2015), there is scope to make service infusion an integral

component of both internal and external social networking processes that influence service/product innovation of ECFs. Service infusion describes firms' strong customer orientation through the provision of comprehensive and customized value offerings to deal with challenges of increased competition and mature markets (Wise & Baumgartner, 1999; Baines et al., 2009; Eloranta & Turunen, 2015).

7.7.1.4 Financial resource pooling

While both external and internal social networking positively and significantly affect financial performance, external social networking had a greater effect on performance than internal social networking. Since a majority (80%) of public sector tenders are usurped by large corporations (Cottle, 2015), the external social networking of ECFs should target forging alliances with venture capitalists who can augment ECFs' finances, and other collaboration networks for pooling ECFs' financial resources together to secure bigger contracts, which would impact their financial performance. Drawing on data from 143 Korean business ventures, Lee, Lee and Pennings (2001) studied the influence of internal capabilities and organisational linkages to external entities on firm performance. Their findings suggest that among external linkages, alliance with other firms and venture capitalists, companies significantly enhance organisational performance.

7.7.1.5 Internationalization of product/service offerings to diversify risk

In the research findings, the limited international presence of ECFs was acknowledged. This is ironic, given the fact that external social networking had positive and significant correlations with all the other non-financial measures of performance, with a higher effect size on these measures than with internal social networking. Given that only the top twelve construction companies in South Africa had a firm regional presence (see section 6.2.2 on the demographic characteristics of the study sample) compared to ECFs, the latter may benefit immensely from using its external social networking ties to diversify risks and opportunities. Thus ECFs in South Africa should be encouraged, and incentives- especially by government, more and more to forge relationships with other firms in the Southern African Development Community

(Angola, Botswana, Congo (DR), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe). Accredited bodies such as the CIDB should then facilitate ECFs' access to business innovation and cross-border activities. This collaborative partnership, such as construction business innovation associations, is critical in view of the fact that many cross-border construction activities have succeed mainly if there were collaboration with established companies, developers and contractors.

7.7.2 POLICY RECOMMENDATIONS

7.7.2.1 Collaborative partnerships between ECFs and established firms

In view of the positive and significant correlation between external and internal social networking variables and their (i.e., external and internal social networking) positive and significant correlation to product/service innovation, some collaborative partnerships may need to be established between ECFs and established businesses with a dedicated focus on establishing a strong culture of innovation. Given the limited capacity of ECFs to engage and collaborate with large businesses, the CIDB (2015) also expects ECFs to develop a partnering approach between ECFs (typically in grades 5 to 7), established construction companies, developers and State-Owned Companies (SoCs).

7.7.2.2 The creation of the CIDB Information Resource Centre

Given the positive and significant relationship among external social networking and external and internal process innovation, albeit a small effect size, the CIDB may need to establish an information resource centre that provides some rich case studies of network-dependent/enhanced process innovation strategies by large businesses for small businesses to emulate and reproduce in their businesses. The Information Resource Centre may also provide capability building and export business advisory services to emerging contractors, where possible, in partnership with established contractors (CIDB, 2015). This centre will always be useful in realising the internalisation of the product/service offering of ECFs mentioned in 7.7.1.5 above.

7.7.2.3 Registration of ECFs with the CIDB

Since external social networking is positively and significantly correlated to external product/service innovation and to internal product/service innovation but with a lesser effect size on the latter, there is value in increasing the visibility of ECFs through augmenting their external social networking ties. While the current study did not make a distinction between ECFs that are owned and managed by previously disadvantaged individuals (PDIs), as the CIDB does, most emerging construction firms not owned by PDIs operate without such registration, arguing lack of interest in State tenders. The registration of ECFs with the CIDB, the organisation that regulates the activities of the industry, not only increases the visibility of unregistered ECFs but also improves their capacity to network with larger established businesses in ways that may augment their external product/service innovation. The potential of ECFs to secure bigger government contracts which demand higher levels of external product/service innovation may be heightened should such firms be incorporated into the CIDB register.

7.7.2.4 Strengthening the internal networking capacity of ECFs

Given the strong and significant relationship among internal social networking and external and internal product/service innovation, as well as between internal social networking external and internal process innovation, albeit strong effect sizes on external product/service innovation and external process innovation, there is greater need to extend and strengthen social networking capacity of the firm to its external partners where its innovation value can be optimized. The conduct of construction road shows, which is normally handled by organisations such as the South African Federation of Civil Engineering Contractors (SAFCEC) and the constitution of collaborative knowledge sharing business associations, be it locally, regionally or nationally, would augment the external product/service and external process innovations, which depend much on the buy-in social networking.

7.7.2.5 The establishment of ECFs' Export Trade Committees

In view of the strong and positive correlation among external social networking, external and internal marketing innovation, albeit a smaller effect on the latter (i.e., internal marketing innovation), an aggressive marketing approach may be necessary to support the marketing innovation of ECFs. Since the research conducted by PwC in 2014 into the operations of the construction industry revealed that many companies produced poor financial performance in the previous year (i.e., 2013) and the short-term movement indicated the absence of positive economic indicators, there is evidence that the industry is on a slight downward trend. Since small firms are often the hardest hit in the event of an economic downturn due to their small market base and their lack of market and product diversification, ECFs may benefit immensely from adopting an international marketing orientation. In particular, their international marketing orientation may be increased if they were to institute Export Trade Committees that focus on their mutual international business market interests.

7.7.2.6 Alliances promoting system-wide innovation and reduce fronting

In view of the positive and significant influence of external social networking on external and internal organisational innovation, notwithstanding its small effect size on the latter (i.e., internal organisational innovation), there is a need to develop alliances among ECFs that accentuate external organisational innovation, where more value lies. Such alliances may entrench the exchange of construction knowledge and strategies in ways that accentuate the diffusion of system-wide innovations. To the extent that fronting (e.g., unethical procurement practices), inaction and uncreative work in construction business are considered a consequence of institutional capacity constraints (Emuze & Adlam, 2013), the development of construction alliances that share, exchange and disseminate innovative strategies across the entire organisation will immensely benefit organisational innovation.

7.7.2.7 Professional development programmes underpinning networking

Since internal social networking is a stronger driver of both external and internal organisational innovation than external social networking, professional development

programmes within ECFs should target internal social networking and knowledge sharing to boost innovation levels across the entire organisation. The current CIDB developmental programmes should not only concentrate on doing things right (focusing on profitability and productivity on projects) but should also do the right things (focusing on quality, safety sustainability and profitability). du Toit and Roodt (2008) reiterate the need to develop various academic development programmes that increase the economic and business relevance of the engineering professions as well as increasing access in line with employment equity requirements. Such programmes are key to organisational competitiveness, as the current study's findings demonstrate that internal social networking is a stronger driver of competitiveness and innovation than external social networking.

7.7.2.8 An integrated networking approach

The current study adopted an integrated view towards social capital which views social capital as a goodwill available to individuals and groups, and its effects flow from the information, influence and solidarity it makes available to the actor (Adler & Kwon, 2002:23). Since both internal and external social networking were found to be positively correlated with firm performance, notwithstanding their small effect sizes, perhaps an integrated networking approach that foregrounds external networking without necessarily excluding internal networking would capacitate ECFs to financially benefit from both types of social networking.

7.8 IMPLICATIONS FOR FUTURE RESEARCH

While the study has attempted to consider both internal and external networking as they relate to various dimensions of innovation, competitiveness and performance, some gaps, which were beyond the scope of this study, still remain. For instance, the levels of innovation and performance of those firms without internal and external networking remains unclear and under-explored. Future studies may need to explore the extent of competitiveness and performance of those firms that do not have strong internal and external networks.

Since the influence of internal and external social networking on competitiveness and performance was considered independently, future studies may need to compare and contrast the effects of internal and external firms combined on performance to the effects of these networking types independently on competitiveness and performance. Perhaps future studies may investigate the effects of internal and external social networking on large firms' performance and consequently be compared to that of small firms to establish if there are any quantitative as well as qualitative differences. The reasons for the similarities or differences obtained may then need to be established based on firm type, firm sector and industry size.

The quantitative orientation of this research precluded us from soliciting qualitative responses that could have provided substantiated explanations of the nature and direction of relationships among networking, innovation, competitiveness and firm performance. That said, the detailed correlation and regression analysis employed in this research, including the validity of the quantitative instrument used, form the foundational strength of this study. Future studies may need to consider a combination of quantitative surveys and in-depth qualitative case studies of selected ECFs to provide more substantiated firm owner/managers narratives and perspectives on why certain relationships unfolded the way they did.

7.9 CONCLUSION

Using methods, such as Pearsons' correlation analysis and techniques that are scientifically defendable, we may come to conclusions that have a high probability of being justifiable in a court of law if so needed Welman and Kruger (2001) quoted in Dzansi (2004). While internal and external social networking variables were found to be positively and significantly correlated, internal social networking was found to be a major driver of innovation and as such, suggests that bonding social ties are extremely important towards the competitiveness and performance of ECFs. The current study proposed in its introductory chapter a conceptual framework that reflects various pathways towards firm performance, and the empirical findings led to a conclusion that an integrated pathway (internal and external social networking) is the most sustainable pathway to follow for ECFs to enjoy long term performance.

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ANNEXURE A