

PERCEPTIONS OF SMALL BUSINESS EXECUTIVES ON DETERMINANTS OF  
PERFORMANCE IN THE CONSTRUCTION INDUSTRY IN GAUTENG, SOUTH  
AFRICA

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PERCEPTIONS OF SMALL BUSINESS EXECUTIVES ON DETERMINANTS OF  
PERFORMANCE IN THE CONSTRUCTION INDUSTRY IN GAUTENG, SOUTH  
AFRICA

by

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SUPERVISOR: DR O. A. BANJO

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## DECLARATION

**Student Number: 71759956**

I declare that **“Perceptions of Small Business Executives on Determinants of Performance in the Construction Industry in Gauteng, South Africa”** is my own work, that has not been submitted for any degree or examination in any other university and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

.....

12 January 2015

George Hove

Date

## **DEDICATION**

This thesis is dedicated to:

My late mother Mushake Chigwire Marozva

and

My late mother in-law Gladys Gwasira

## ABSTRACT

Small businesses growth and profitability is a national problem in South Africa (SA) and the Emerging Contractors (ECs) in the construction industry in Gauteng Province are no exception. The SA government expect ECs to become the main players in economic transformation and growth, job creation and income generation. However, ECs fail to live up to the expectations as some are characterised by low performance levels and are at risk of business closure. The purpose of this research is to examine the perceptions of Small Business Executives (SBEs) on determinants of business performance so that a performance model that could guide ECs within the construction business is developed. The researcher used a mixed approach to examine the perceptions of SBEs on determinants of ECs' performance by applying both qualitative and quantitative research approaches. The population from which the sample was drawn comprised of 1890 urban based ECs registered with CIDB in the construction industry in Gauteng. Systematic random sampling was utilized and a sample size of 501 ECs was used. A structured questionnaire and interview guide were administered as the data collection instruments. A pilot survey was conducted where 2 key informants (SBEs) and 15 respondents (SBEs) were interviewed as representatives of ECs. A survey was used to assess the four hypotheses in the study.

Content analysis was used to identify themes that emerged from qualitative data. The analysis of qualitative data demonstrated the perceptions of SBEs that financial factors, manpower, materials, machinery and equipment, project implementation, quality of work, legal and environmental and strategic planning were the main determinants that should be addressed when setting up and running construction businesses to reduce the negative impact on business performance. Based on the perceptions of SBEs, in quantitative, the univariate and multivariate statistical methods were performed to measure the level of significance between and among the performance determinants were tested at 5% confidence interval. Multiple linear regressions carried out based on the perceptions of SBEs identified strategic planning, project implementation and project performance as the most statistically significant factors in predicting the performance of ECs in Gauteng Province. The results from both qualitative and quantitative methods were synthesised and analysed through data transformation, typological development and case study analysis

and the perceptions of respondents indicated a strong agreement between the qualitative and quantitative results.

Based on multivariate results which were a result of the perceptions of SBEs, a performance prediction model was developed which is the core contribution of the study. The structure of the model, how it is used, its advantages and disadvantages were presented. The model provides a platform upon which ECs could predict performance and this would benefit ECs, clients, community and policymakers.

In conclusion, the study established three significant determinants that include strategic planning, project implementation and project performance as highly relevant variables to improve construction business performance. Based on the perceptions of the respondents, the study recommends ECs to acquire and develop financial management skills that would enable them to understand and manage financial requirements that stakeholders such as financial institutions need in the areas of budgeting and cash flow management, bookkeeping knowledge, financial policies and controls and project pricing strategy. On the shortage of skills, the study recommends SBEs to take an initiative role in training employees, motivating and retaining competent workforce. The government need to establish technical colleges for training workers (apprenticeship) in order to equip them with appropriate industry knowledge, skills and experience. Lack of collateral security was widely reported by most SBEs and the study recommends the formation of a sector bank that would support emerging contractor businesses.

**Key terms:** Business Performance, Conceptual Performance Prediction Model, Construction industry, Critical Incidents, Determinants, Emerging Contractor, Perception, Small Business Executive (SBE), Gauteng Province, South Africa.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

<b>BEE</b>	Black Economic Empowerment
<b>BBBEE</b>	Broad Based Black Economic Empowerment
<b>BCA</b>	Building and Construction Authority
<b>BSC</b>	Balanced Scorecard
<b>CBPP</b>	Construction Best Practice Programme
<b>CCMA</b>	Commission for Conciliation, Mediation and Arbitration
<b>CE</b>	Civil Engineering
<b>CETA</b>	Construction Education and Training Authority
<b>CIDB</b>	Construction Industry Development Board
<b>CII</b>	Construction Industry Indicators
<b>CIP</b>	Contractor Incubation Programme
<b>CIT</b>	Critical Incident Technique
<b>CONQUAS</b>	Construction Quality Assessment System
<b>CPM</b>	Critical Path Method
<b>DPW</b>	Department of Public Works
<b>EC</b>	Emerging Contractor
<b>ECDM</b>	Emerging Contractor Development Model
<b>ECDC</b>	Eastern Cape Development Corporation
<b>ECDP</b>	Emerging Contractor Development Programme
<b>EFQM</b>	European Foundation for Quality Management
<b>EPWP</b>	Extended Public Works Programme
<b>FIDIC</b>	International Federation of Consulting Engineers
<b>GB</b>	General Building
<b>GDP</b>	Gross Domestic Product
<b>JBCC</b>	Joint Building Contracts Committee
<b>LWCIR</b>	Lost Workday Case Incident Rate
<b>KPI</b>	Key Performance Indicators
<b>MBASA</b>	Master Builders Association of South Africa
<b>NBR</b>	National Building Regulations
<b>NCICM</b>	National Construction Industry Council of Malawi
<b>NHBRC</b>	National Home Builder Registration Council
<b>NQF</b>	National Qualification Framework
<b>PASS</b>	Performance Assessment Scoring System

<b>PFI</b>	Private Finance Initiative
<b>PICC</b>	The Presidential Infrastructure Co-ordinating Commission
<b>PPE</b>	Personal Protective Equipment
<b>PPI</b>	People Performance Indicators
<b>QMS</b>	Quality Management Systems
<b>RDP</b>	Reconstruction and Development Program
<b>RIR</b>	Recordable incident rate
<b>R &amp; D</b>	Research and Development
<b>RSA</b>	Republic of South Africa
<b>SABS</b>	South African Bureau of Standards
<b>SBE</b>	Small Business Executive
<b>SACEM</b>	South African Construction Engineering Model
<b>SEDA</b>	Small Enterprising Development Agency
<b>SME</b>	Small and Medium Enterprises
<b>SMME</b>	Small Micro and Medium sized Enterprise
<b>TQM</b>	Total Quality Management
<b>UK</b>	The United Kingdom
<b>PICC</b>	Presidential Infrastructure Co-ordinating Commission

# CHAPTER ONE

## INTRODUCTION

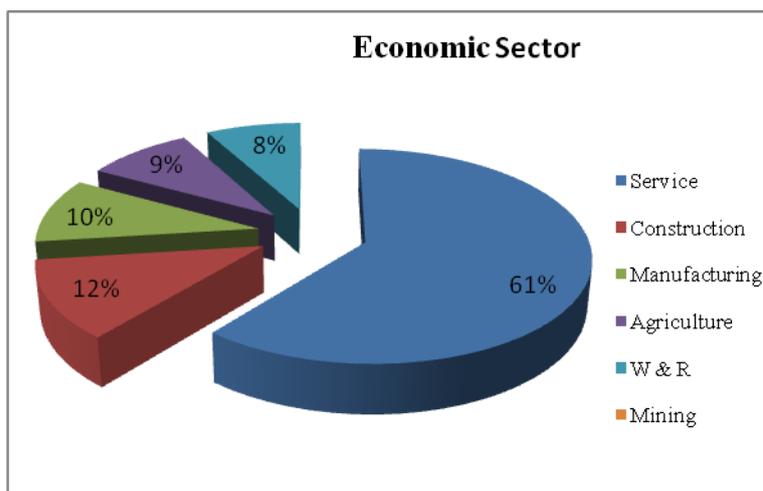
### 1.1 BACKGROUND TO THE STUDY

The role of Emerging Contractors (ECs) in the economic development of a nation is a controversy (Ofori, 1990). In the Republic of South Africa (RSA), contractors are expected to become the main players in economic transformation and growth, job creation and income generation. Against this, the government put forward measures to create an enabling environment for new entrants into the construction industry after 1994 (Hauptfleisch *et al.*, 2007). However, ECs have failed to live up to expectations as some are characterised by low performance levels and are at risk of business failure (Atkinson, 2012; Greyling, 2012; Buys & Ludwaba, 2012; Baloyi and Bekker, 2011).

The construction industry is one of the main economic engine sectors, supporting the national economy (Dlungwana *et al.*, 2002), providing the physical infrastructure and engaging in projects that generate new buildings and refurbish existing ones for a variety of clients (Marx, 2012; CIDB 2010). The industry provides the buildings used in the production of goods in the economy (Ofori, 2012: 4), including general contractors who build residential buildings and non-residential such as industrial, commercial and other buildings. The civil engineering contractors construct roads, highways, bridges, tunnels and other projects related to national infrastructure. Accordingly, the public sector is a major contributor to infrastructural development, accounting for around R150 billion in civil engineering projects and R25 billion in residential and non-residential building works annually (CIDB 2012).

The importance of the industry to the economy can also be gauged by its contribution to the gross domestic product (GDP), investment and the volume of labour (Rust and Koen, 2011; Ofori, 2006). The industry contributes 35% to the total gross domestic fixed investment (Department of Public Works, 1999) and has the second largest percentage of small and medium enterprises (SME) (12%), after services industry (SEDA Annual Report 2011/2012), as shown in Figure 1.1 (below).

**Figure 1.1: Sector Classification of SEDA’s existing clients**



**Source:** Adapted from SEDA Annual Report (2011 / 2012: 27)

In terms of employment, the majority of construction workers in South Africa are employed by ECs. The total number of people employed in the construction industry in 2012 was approximately 986,000 (Snyman, 2012:24), as indicated in Table 1.1 (below), in which Gauteng Province had the highest figure (27%) and Northern Cape the lowest (2%).

**Table 1.1: Employment, Construction by Province 2012**

Province	Employment (2012)	Percentage
Western Cape	135 000	14
Eastern Cape	108 000	11
Northern Cape	19 000	2
Free State	47 000	5
KwaZulu Natal	210 000	21
North West	46 000	5
Gauteng	265 000	27
Mpumalanga	64 000	6
Limpopo	92 000	9
<b>TOTAL</b>	<b>986 000</b>	<b>100</b>

**Source:** Adapted from Snyman (2012: 24)

When compared to large companies which rely on automation in their operations, ECs remain a sustainable source of employment creation as they have the potential to build viable construction companies and develop skills. Since 1994, South Africa government and construction sector have engaged in processes that redirected the industry’s growth and performance as a way of supporting the country’s social and economic transformation agenda (CIDB, 2004). The ECs comprise the largest percentage of contractors that employ few permanent staff, usually less than 10 employees (Thwala and Phaladi, 2009). These contractors operate at local and metro level, on which severe competition undermines sustainability and consolidation (CIDB, 2014). However, through the CIDB grading system, ECs cannot tender for large projects as these cannot be subdivided to accommodate ECs. Such projects require a high level of management, financial solvency and technical capability (Greyling, 2012; Windapo and Cattell, 2011). This defines the qualities and skills frequently found amongst Grades 7 to 9 contractors (Windapo and Cattell, 2011). As a result, these undertake large projects while ECs find it more difficult to meet the requirements of the financial institutions necessary for the award of tenders. Table 1.2 (below) shows class of works and number of enterprises per grade.

**Table 1.2: Number of enterprises and class of works**

<b>Designation</b>	<b>CE</b>	<b>EE</b>	<b>EP</b>	<b>GB</b>	<b>ME</b>	<b>SW</b>	<b>TOTAL</b>
1	23 268	1 313	4 051	50 998	4 227	15 389	99 246
2	1 499	113	119	2 032	217	497	4 477
3	639	82	86	597	92	135	1 631
4	788	132	201	811	151	154	2 237
5	681	133	265	636	212	255	2 182
6	738	41	79	614	85	73	1 630
7	234	29	47	223	44	36	613
8	86	7	15	86	18	14	226
9	47	2	21	31	21	19	141
<b>TOTAL</b>	<b>27 980</b>	<b>1 852</b>	<b>4 884</b>	<b>56 028</b>	<b>5 067</b>	<b>16 572</b>	<b>112 383</b>

**Source:** Adapted from CIDB (2010)

**Key:** **GB:** General Building, **CE:** Civil Engineering, **ME:** Mechanical Engineering, **EE:** Electrical Engineering, **EP:** Plumbing Engineering, **SW:** Specialist Works.

It is in the interest of South Africa government to see a stronger presence of ECs to Grades 7 to 9, in order to reverse historical economic imbalances in income distribution and employment, but the absence of such a presence is a concern for the CIDB, the government agency charged with ensuring construction industry development (Windapo and Cattell, 2011). Many ECs are newcomers to the industry, with very little working capital and limited track record (Thwala and Phaladi, 2009). The contractors do not have adequate technical training, business culture, capacity or maturity (Greyling, 2012; Windapo and Cattell, 2011), and so are not able to provide acceptable quality of work. Much customer dissatisfaction has thus been attributed to their performance (CIDB, 2004).

The contribution of ECs to South Africa's economic development has been a focus of discourse for a number of years (Atkinson, *et al.* 2012). At policy level, the national, provincial and municipal policies and strategies relating to the construction industry are in favour of ECs (Greyling, 2012), however, the development and performance of ECs in terms of growth and profitability has remained a concern to the policymakers and business executives (Greyling, 2012; Buys and Ludwaba, 2012; Thwala and Mvubu, 2009).

There are reports in literature confirming ECs' relative weak performance due to constraints in the construction industry that lead to the alleged failure of contractor companies (Greyling, 2012). For instance, a study conducted in the Free State Province show 50% of construction projects failed to complete work as required (Greyling, 2012), indicating a need to periodically measure performance and compare past performance in order to find out what should be improved (Thwala and Mvubu, 2009). Otherwise, the construction industry may become riskier for ECs, given the RSA's dynamic marketplace.

According to literature, contractors often fail to complete work within the contract or extension period (Thwala and Phaladi, 2009), thus work is stopped, abandoned or suspended before completion. ECs have been accused of failing to comply with the terms and conditions of the contracts they enter into and their performance has been dominated by clients dissatisfied with the quality of work delivered, high levels of defects which are regarded as inappropriate and delayed project delivery (CIDB, 2012). This indicates weak performance and becomes a binding constraint to contractor growth and profitability.

Construction clients in the industry award contracts to ECs based on past performance (CIDB, 2007), suggesting that ECs need to offer satisfactory performance on current

projects as a means of securing future projects. ECs that are able to complete projects within less time, at less cost and higher quality, whilst adding value for money to clients and higher profits would be considered in future construction projects (Alinaitwe, 2008; Faridi and El- Sayegh (2006). This can be achieved through contractors' continuous improvement on construction operations.

Although ECs wish to expand, there are challenges that hinder growth and profitability (Snyman (2012). A support for this perception is evident in a subcontracting survey conducted by CIDB (2013), which shows that contractors at times terminate relationships with subcontractors due to poor track record in managing cash flows, inability to complete the apportioned work, overpricing work, failure to pay labour, disputes about payment and poor performance on site health and safety. The clause of 'pay when paid' applied in the industry is a challenge to ECs.

Amongst development programmes that have been initiated by South Africa government to encourage a wider participation of ECs in the construction industry (Gasa 2012), are emerging contractor development models (ECDMs) and emerging contractor development programmes (ECDPs) (Buys and Ludwaba, 2012). The former refers to a structured methodology that comprises measures designed to help ECs develop the technical and management skills required to grow businesses (Dlungwana and Rwelamila, 2005). However, a review of literature shows that no single model for contractor development fits all grades of contractors and all levels of business stages (Greyling, 2012). Different models are more appropriate to different levels of development and can be broadly grouped as shown in Table 1.3 (below).

**Table 1.3: Combined models**

<b>Model</b>	<b>Description</b>
EPWP	Learnership type models meant for the development of the Grade 1 and 2 construction workforce
ECDPs	Emerging Contractor Development Programmes meant for Grade 2 to 3 ECs;
EDPs	Enterprise Development Programmes for, typically, contractors in Grades 3 to 6 who exhibit potential to develop.
IECDM	Realised in the improvement of business management skills, tendering skills, business growth, CIDB grading and increased employment chances
SACEM	Programmes focusing on improving the performance of established contractors in, typically, Grades 4 to 7, such as the Contractor Incubator Programme in line with the SA Construction Excellence Model

**Source:** Research (2014)

Despite the progress made in developing the models, gaps and shortcomings persist, thus, the performance of ECs has remained relatively low. Furthermore, little is known about the determinants of performance, especially from the Small Business Executive (SBE) perspective and the knowledge has remained scattered and limited, despite an extensive research in the construction industry.

### **1.1.1 CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB)**

The Construction Industry Development Board (CIDB) was established through an Act of Parliament (Act 38 of 2000) to promote a regulatory and development framework that builds the construction delivery capacity for RSA's social and economic growth and a construction industry that delivers to globally competitive standards (CIDB 2012). The CIDB grading system provides a framework for matching contractors and contracts (Greyling, 2012), as shown in Table 1.4 (below).

**Table: 1.4: Contractor grading system and tender range values**

Contractor grading	Range of tender values	
	Greater than (‘R)	Less than or equal to (‘R)
1	0	200 000
2	200 000	500 000
3	500 000	1 500 000
4	1 500 000	3 000 000
5	3 000 000	5 000 000
6	5 000 000	10 000 000
7	10 000 000	30 000 000
8	30 000 000	100 000 000
9	100 000 000	No limit

**Source:** Adapted from CIDB 2010

The CIDB grading system regulates the maximum tender that a contractor can bid, with 9 being unlimited and 8 being between R40 – 130 million (Greyling, 2012). Contractors that fall in 4-7 grading categories are often small and medium enterprises (SMEs) which can bid on tenders between R4 – 40 million, while contractors that fall in 1 – 3 grading categories are often small enterprises which can bid on tenders less than or equal to R1.5 million (Greyling, 2012). CIDB is however concerned about the capabilities of lower grade businesses on its register of contractors to develop, questioning the effectiveness of its contractor development programmes and other strategic policies (Windapo and Cattell, 2011).

According to the CIDB (2012), no public sector client may award construction contracts to a contractor who is not registered. Currently, 98% of all registered contractors are categorised as small contractors who fall within level 1-5 of the CIDB’s classification system (CIDB, 2010). However, a large proportion of small scale contractors perceive the registration system as an expensive distraction with no value (van Wyk *et al.*, 2011). The system causes intense frustrations and is limited by time constraints (Greyling, 2012).

The construction industry in RSA reflects the global structure insofar as the majority of construction enterprises fall within the definition of small and medium enterprises with only a small percentage rated as large (van Wky *et al.*, 2011). The greatest number of contractors is found at the base of the pyramid, which as it pyramid rises, sees the number of enterprises decrease steadily (CIDB, 2012). Except for regulatory work heads, the

registry functions as an administrative body only for the public sector procurement. In Singapore, contractors who are not registered with BCA are precluded from conducting business as contractors or suppliers outside the public sector (Economics Research Department, 2011:4).

### **1.1.2 CURRENT TRENDS IN SOUTH AFRICAN CONSTRUCTION INDUSTRY**

The Department of Public Works, the Construction Industry Development Board and Construction Education and Training Authority are currently three public entities in RSA that implement construction industry development initiatives. The trends in the industry are largely shaped through these departments. The numerous construction projects which were carried, for example, in preparation for the country's hosting of the 2010 FIFA World Cup, cushioned the local construction industry against the 2008 global building slump (Creamer Media, 2013). In spite of a boom, activities in the industry declined after the event and companies faced adverse trading conditions. After a few years, some industry participants expected market conditions to improve in 2012, but as the year unfolded, they continued to report a slow flow of contracts (Creamer Media, 2013).

There is some optimism, however, that the construction industry may recover, a key factor being the rate at which the government intends to roll out its planned R827 billion infrastructure expenditure over the next three years (CIDB 2012). The turnover in the construction industry is highly sensitive to government spending as the government is the industry's largest client (Windapo and Cattell, 2011). As at the beginning of year 2013, the tenders relating to government's infrastructure plans were slowly coming to the market. However, infrastructure planning has been channelled through the Presidential Infrastructure Co-ordinating Commission (PICC) and it is hoped this would unblock project delays.

Various indicators have been employed as the basis of analysis in examining the current drivers of South Africa construction industry, including economic outputs such as GDP, state of the infrastructure, construction businesses and employment. As highlighted by Pearce (2003), each of these reveals part of the story that is relevant to understanding the state of the construction industry. The current drivers in the construction industry relate to the state of the infrastructure and for the purpose of this study are defined as forces

external to the industry that influence its behaviour and current situation (Rust and Koen, 2011). These include the housing backlog, which has led to urban shanty houses and poverty. These houses lack adequate access to water, sanitation, security of tenure, structural quality of housing and living space (Rust and Koen, 2011). Demand for housing is constantly growing as the population increases and more people move into cities, such as Johannesburg. However, the government has aimed to eradicate informal settlements by 2014 (Rust and Koen, 2011). Another driver relates to the infrastructure as the government intends to improve on aging national infrastructure. Many types of infrastructure are needed in Gauteng Province to support the growing population and to achieve national development objectives. The government policies tend to keep the construction industry busy as it spends on infrastructure as a way of protecting jobs and boosting the economy. As a result, the existence of ECs in these developments is vital.

The performance and delivery of the SA construction industry has remained highly variable and inconsistent across a broad range of issues and policies such as the Government Preferential Procurement Policy Framework Act (Atkinson, *et al.* 2012). There is fierce competition and low margins in the industry which generate loss of knowledge and concomitant enterprise failure, predominantly in the R5 million and lower range (CIDB, 2013). A lack of knowledge and deterioration in capability remain problematic, resulting in an “average” customer satisfaction rating of industry products (CIDB, 2013; Atkinson, *et al.* 2012). The shortage of skilled labour force has been cited as one challenge within the industry (CIDB, 2013), implying that skills are not being developed and employment conditions show no respect for people being applied (Atkinson, *et al.* 2012). The employment of casual labour in the industry has been the daily norm coupled with reduced wages, poor working conditions and remuneration, low formal skills development or training, and thus reduced quality of life (Atkinson, *et al.* 2012). However, with the establishment of the CIDB, CETA, Broad Based Black Economic Empowerment (BBBEE), Preferential Procurement Policy Framework, some of these issues in the industry may change and stimulate ECs’ growth and profitability.

## **1.2 THEORETICAL FOUNDATION AND LITERATURE REVIEW**

The theories that have a bearing on this thesis are the Balanced Scorecard (Kaplan and Norton (1992) and The SA Construction Excellence Model (SACEM) (Dlungwana *et al.*, 2002).

### **1.2.1 Balanced scorecard theory**

One influential model to guide ECs in the construction industry to enhance business performance is the balanced scorecard model (BSC), developed by Kaplan and Norton in the 1990s. With it, balancing the measurement system is required so that all essential perspectives affecting company success are brought into focus (Kaplan and Norton, 1996). Although the BSC has gained popularity in research and industry it still has its shortcomings (Bassioni *et al.*, 2004):

- The majority of BSC implementation initiatives in firms fail and the perspectives of the BSC have been considered insufficient (Neely and Bourne 2000).
- Even though the model does not tell what the strategy should be, or what should be measured, it gives a general framework for measurements and for the process of implementing a strategy in practice. As an advantage, the model further suggests that its perspectives should be considered as cornerstones of the measurement system (Salminen, 2005).

### **1.2.2 South Africa Construction Excellence Model (SACEM)**

In South Africa, EC development models (ECDMs) have been developed to help contractors develop the technical and management skills required to grow business enterprises (Dlungwana and Rwelamila, 2005). The Construction Excellence Model (SACEM) is a tool suitable to facilitate the culture of continuous improvement for contractors and has been used in the construction industry. It is a comprehensive, systematic model intended to promote the concept of total quality management at both the corporate and construction site levels (Dlungwana *et al.*, 2002). The model comprises 11 performance assessment criteria which are strongly linked to one another such that activities on the enabler side have a direct result on the supply side. Each criterion carries a

score weighted according to its importance in helping a contractor achieve superior performance.

### 1.2.3 Challenges faced by ECs

An examination of literature indicates that construction industries around the world face many difficulties and challenges (Ofori, 1991), however, they become more significant and complex in developing countries such as South Africa, where ECs face challenges such as lack of skills, financial instability, chronic resource shortages and general failure by contractors to deal with key issues (Buys and Daluxolo, 2012; Rust and Koen, 2011). These challenges make some businesses unable to sustain operational performance beyond the start-up phase (Herrington, Kew and Kew, 2010). Table 1.5 (below) shows relative contributions to entrepreneurial activity of start-ups, new firms and established businesses for efficiency-driven economies (Herrington *et al.*, 2010:39).

**Table 1.5: Start-up, new firm and established business entrepreneurial activity**

Country		2002	2003	2004	2005	2006	2007	2008	2009
<b>Argentina</b>	Start-up	8.3	12.4	9.1	5.8	6.2	7.8	8.5	6.1
	New Firm	6.2	8.5	4.5	3.9	4.1	7.1	8.5	9.3
	Establish	12.3	9.3	9.2	6.1	8.1	10	13.5	13.5
	Ratio	1.3	1.5	2.0	1.5	1.5	1.1	1.0	0.7
<b>Brazil</b>	Start-up	5.6	6.5	5.0	3.3	3.5	4.3	2.9	5.8
	New Firm	8.4	6.9	8.8	8.2	8.6	8.7	9.3	9.8
	Establish	10.1	9	11.9	10.9	13.4	9.9	14.6	11.8
	Ratio	0.6	0.9	0.6	0.4	0.4	0.5	0.3	0.6
<b>Chile</b>	Start-up	10.3	10.8		6	5.7	7.3	7.7	9.6
	New Firm	5.5	7.1		5.3	3.9	6.5	5.6	5.6
	Establish	8.0	8.0		4.3	7.6	8.7	6.7	6.7
	Ratio	1.9	1.5		1.1	1.5	1.1	1.4	1.7
<b>China</b>	Start-up	5.5	3.9		5.5	6.5	6.9		7.4

	New Firm	7.4	7.4		9.4	10.5	10		11.8
	Establish	11.6	19.4		15.2	10.6	8.4		17.2
	Ratio	0.7	0.5		0.6	0.6	0.7		0.6
<b>Croatia</b>	Start-up	2.6	1.7	2.5	3.9	6.2	5.3	4.9	3.5
	New Firm	0.9	0.9	1.0	2.5	2.4	2	2.8	2.2
	Establish	3.0	3.1	2.9	4.3	5	4.2	4.8	4.8
	Ratio	2.9	1.9	2.5	1.6	2.6	2.7	1.7	1.6
<b>Hungary</b>	Start-up	3.3		2.7	1.0	3.1	3.8	3.8	5.4
	New Firm	3.6		1.5	0.8	3	3.1	2.8	3.7
	Establish	6.6		3.2	2.6	6.7	4.8	5.3	6.7
	Ratio	0.9		1.8	1.3	1	1.2	1.3	1.5
<b>Peru</b>	Start-up			30.7		29.7	15.1	19.7	16.1
	New Firm			12.8		14.9	12.2	6.8	5.1
	Establish			20.9		15.6	15.2	8.3	7.5
	Ratio			2.4		2	1.2	2.9	3.2
<b>Russia</b>	Start-up	0.9				3.1	1.3	1.7	1.8
	New Firm	1.4				1.7	1.3	2.0	2.3
	Establish	1.5				1.8	1.7	1.1	2.3
	Ratio	0.6				1.8	1.0	0.8	0.8
<b>RSA</b>	Start-up	4.5	2.7	3.7	3.5	3.4		5.7	3.6
	New Firm	1.9	1.9	1.6	1.6	1.7		2.1	2.5
	Establish	2.5	1.7	2.2	1.5	2.5		2.3	1.4
	Ratio	2.4	1.4	2.3	2.2	2.0		2.7	1.4
<b>Uruguay</b>	Start-up					8.0	7.4	7.7	8.1
	New Firm					4.6	5.0	4.4	4.2
	Establish					8.2	6.6	7.9	5.9
	Ratio					1.7	1.5	1.8	1.4

**Adapted:** Harrington *et al.* (2010)

The table shows a high ratio for South Africa between start-ups and new businesses. In other countries this ratio is lower, suggesting that in South Africa many businesses such as ECs that are at the bottom of CIDB grading either never progress beyond the start-up phase or close.

The main contributory factors to the growth of ECs that are noticeable and which have adverse implications for performance include:

- The low level of bargaining power of the ECs in view of the way in which demand is put;
- The project-based nature of work, which implies discontinuity and leaves ECs without construction work;
- The use of aged technology by ECs in the construction industry which does not match with large construction companies;
- The way in which projects are financed in many countries (with the client only paying for work which has been done);
- The high level of regulations governing construction activities which means ECs must seek many administrative approvals.

These factors involve cost and time for the ECs and cause delays in project delivery, resulting in penalties that are significant to the proportion of ECs' turnover. Accordingly, South Africa government has made several attempts to improve the performance of ECs in the industry by providing support schemes that include:

- Through CIDB grading system, a floor limit on project values has been placed which makes it difficult for larger businesses to tender for, thereby reserving some projects for ECs (CIDB, 2012).
- South Africa government has accepted the role of emerging ECs for job creation (Dlungwana and Rwelamila, 2003) and so has made considerable progress in creating an enabling environment for new entrants to the construction industry (Buys and Daluxolo, 2012).

- Through SEDA and CIDB, ECs are provided with financial assistance and training or mentorship.
- The Extended Public Works Programme, the Emerging Contractor Development Programme and the Contractor Incubation Programme (CIDB, 2009).
- The Preferential Procurement Policy Framework Act of 2000.
- Broad Based Black Economic Empowerment Act (53 of 2003).
- Provision of guidance in the form of management and financial administration in the execution of projects.
- Some financial institutions have seen business opportunities in the construction industry through ECs and have set up assistance schemes for them (Greyling, 2012).

Although the government has provided support to the ECs there are views that are upheld in literature which show that weak performance is still found within the EC industry. Thus, the intended performance outcomes have remained elusive for ECs (Buys and Daluxolo, 2012). The results of the business conditions survey conducted by the CIDB (2009) show that contractors are reporting worsening business conditions, showing that ECs have failed to take the important role as their performance has remained relatively low (Thwala and Phaladi, 2009).

### **1.3 THE PROBLEM STATEMENT**

There is weak performance and lack of growth of ECs, despite implementation of government policies to improve their performance (Buys and Ludwaba, 2012; CIDB, 2012; Greyling, 2012; Marx, 2012). The business performance of ECs is still lagging behind, as evidenced by lower levels of profitability and sustainability (Greyling, 2012; Buys and Ludwaba, 2012; Thwala and Phaladi, 2009).

The following question therefore summarises the statement of the problem:

- **What are the perceptions of SBEs on the determinants of business performance in Gauteng that affect sustainable growth, profitability and enhancement?**

### **1.3.1 Rationale of the study**

The reviewed literature demonstrates that the performance of the ECs in the construction industry is relatively weak (CIDB 2011, 2012; Marx 2013; Atkinson, 2012; Buys and Ludwaba, 2012; Gasa, 2012; Greyling, 2012; Windapo and Oladapo, 2012; Mbachu, 2012) despite government intervention in the form of CIDB, ECDP, EPWP and CETA. Thus, the failure in the industry to systematically explain the determinants of ECs' performance has led the issue of performance to remain a subject of discussion among academics, business executives and policymakers. A review of literature has shown that perceptions are critical to explain and solve problems of this nature. For example, Umar *et al.*, (2012) used perceptions of regional stakeholders on benefits of the private finance initiative (PFI) for infrastructure provision in Malaysia. The study found that the value for money that was being emphasised as the most important benefit of the initiative did not exist from the viewpoint of the respondents, and the government had to reappraise the reasons for adopting the PFI procurement strategy. Odusami (2002:61) used perceptions of construction professionals concerning important skills of effective project leaders in Nigeria. The study found that the most important skill among three groups (clients, the consultants and the contractors) was decision-making. However, in the overall analysis, the study established no significant difference in the perceptions of the three significant actors regarding the ranking of the skills. Another study, by Akinsiku and Akinsulire (2012:25), assessed construction stakeholders' perceptions of the causes of delays and its effects on project delivery in a bid to offer solution in minimising the occurrences of delays. Based on stakeholders' perceptions, client's cash flow related problems were found as the main causes of delays while time and cost overruns were the major effects of delays in construction delays.

In order to reach the core of the ECs problem in South Africa, a different perspective is looked at, that of determining the perceptions of SBEs in the construction industry on determinants of business performance. The approach may give policymakers and SBEs a starting point since there are few studies if any that looked at the perceptions of SBEs registered with CIDB. SBEs' experiences, perceptions and incidents may trigger

businesses in the construction industry either to survive or collapse as well as improving business performance. Therefore, any attempt to influence ECs' performance should engage SBEs and gauge a thorough understanding of their perceptions. Otherwise, the issue of ECs' performance would be perpetuated unless research were undertaken that examines the business assistance realities of SBEs to better understand those experiences from the perspective of their understanding and abilities. Against this background, SBEs being the business custodians with substantial experience which has not been accessed or harnessed, the essence of the study is to establish their perceptions on the determinants of ECs' performance within Gauteng Province so that a performance enhancement model could be developed.

In terms of the methodologies used before in EC performance studies, the critical incident technique (CIT) (Flanagan, 1954) has not been utilised to gauge the perceptions of SBEs, yet, the CIT allows respondents to give verbatim stories about SBE experiences (Keaveney 1995). Respondents answer questions in their own words and this reveals more about what they think in relation to the critical incidents encountered. CIT is a useful technique with which the researcher looks for insight into how SBEs think rather than measuring how many business owners think in a certain way. Researchers and policymakers have moved ahead of SBEs in terms of explaining the determinants of ECs' performance. The solution to the problem is nowhere near, which may suggest that SBEs have been deprived of their voice in the performance of business operations.

In order to close this gap, this study looked back and engaged SBEs' experiences in the body of knowledge and policy formulation, using the critical incident technique (CIT) (Gremmler 2004; Keaveney 1995; Flanagan 1954) to facilitate investigation of significant occurrences (incidents) identified by SBEs to gain a better understanding of the determinants of construction business performance from the perspective of the business executives, taking into account cognitive, affective and behavioural elements.

The above discussion has pointed out the gap in literature and how researchers have omitted the perceptions of SBEs and the utilisation of the CIT. If SBEs are given an opportunity to express their opinions highlighting the incidents encountered, this may contribute towards the desired goal of enhancing the ECs' performance.

### **1.3.2 Research questions**

To gain a better understanding of ECs' performance in South Africa and to determine which factors SBEs believe are important for high business performance, the proposed exploratory descriptive study sought to answer the following research questions:

- What critical incidents have been encountered and perceived by SBEs in the construction industry to have impacted on business performance?
- What are the determinants of ECs business performance in Gauteng Province?
- What relationship exists between project performance and corporate performance as perceived by SBEs?
- What are the perceptions of SBEs on the determinants of business performance among the ECs in Gauteng Province?
- What relationship exists between the profiles of ECs and their performance in the industry?
- What are the perceived measures that can be put in place to promote high performance among ECs?

### **1.3.3 Research aim**

The aim of the study is to examine the perceptions of SBEs on determinants of business performance with reference to the CIDB Grade 2 registered ECs in Gauteng Province.

### **1.3.4 Objectives**

The objectives of this research are as follows:

- To assess the critical incidents that have been encountered by SBEs in the construction industry and their effect on business performance.
- To assess the determinants of EC business performance in Gauteng Province.

- To assess the relationship between EC project performance and EC business performance?
- To assess the perceptions of SBEs on determinants of business performance in Gauteng Province.
- To establish the relationship between the profiles of ECs and their performance in the industry.
- To characterise the perceived measures that could assist in promoting high performance among ECs.

### **1.3.5 Hypothesis of the study**

Based on the research questions, the four hypotheses for this study regarding ECs registered with CIDB in Gauteng Province are outlined below:

**H1:** Financial factors, manpower factors, supply of materials, equipment and machinery, project implementation, quality factors; legal and regulatory factors, strategic planning affect EC performance.

**H2:** Project performance positively affects the overall corporate performance.

**H3:** Perceptions of SBEs can affect positively or negatively their business performance.

**H4:** There is a relationship between company profiles and Business performance.

## **1.4 BRIEF RESEARCH DESIGN**

A cross-sectional study design was used to collect the data that was needed to test the research questions of this study. This design was most convenient as the questionnaire was only sent out once to a single population element. The study employed a mixed approach to examine the perceptions of SBEs on determinants of ECs' performance by applying both qualitative and quantitative research approaches. This was done to provide a better understanding of the perceptions of SBEs on determinants of business performance.

#### **1.4.1 Population and sampling**

The population from which the sample was drawn comprised 1890 urban based ECs (Grades 2) registered with CIDB in the construction industry in Gauteng, the Province selected based on the level of business confidence (CIDB 2013) recorded during the financial year 2011 /2012, and the most prosperous. Random sampling of 501 ECs was used, to which a largely structured questionnaire and interview guide were administered as the data collection instruments. The unit analysed comprised the SBEs as representatives of ECs.

#### **1.4.2 Data analysis and interpretation**

The first phase involved qualitative results which were content analysed, measuring the semantic content or the aspect of a message (Cooper and Schindler, 2011). The results obtained from this phase informed the quantitative research through data transformation. The second phase involved quantitative findings which were analysed using descriptive and inferential statistics, the former including measures of central tendency and dispersion. The results were presented as bar charts and tables, the latter to draw inferences from a sample to a population. The univariate and multivariate statistical methods were performed to measure the level of significance between and among the performance determinants tested at a desired confidence level. The results from both qualitative and quantitative methods were integrated to establish areas of convergence and divergence.

### **1.5 THE SCOPE OF THE STUDY**

The study covered ECs registered with CIDB in Grade 2 and was conducted in Gauteng Province, one of nine in South Africa, namely, Gauteng, Western Cape, Mpumalanga, KwaZulu-Natal, Free state, Eastern Cape, Northern Cape and North West Provinces. The construction industry depends heavily on government orders in sectors such as electricity power plants, petroleum and infrastructure projects. The national and provincial governments are the major customers for large projects, such as Medupe Power Station and other infrastructure construction, which require high technology. Such orders are given to construction companies in Grades 7 to 9 contractors as they are considered strong in financial terms. Contractors in Grade 1 to 6 are perceived to lack capital and technology

which act as barrier against their performance. Private orders are notable in other segments such as industrial and commercial buildings. Public infrastructural projects are associated with considerable risks, the complexity involved is huge, and involve many public and private stakeholders with conflicting interests. Such projects have an impact on the public during execution and many changes are usually encountered compared to other types of construction projects.

The data required from SBEs in the construction industry related to perceptions on the determinants of business performance and impact on the performance of ECs. The respondents were limited to SBEs as representatives of ECs, an acknowledgement of their increasing role in business decisions, particularly in the construction industry. Government departments and private developers were classified as clients of the construction projects.

There are three types of project considered in this study: a government project, that is a public one initiated from a government department such as the Housing Authority; a public / private utility project, which is usually an infrastructure project, for example, one initiated by a mass transportation services provider such as railway system; and a private development project, such as residential development.

## **1.6 PERCEIVED CONTRIBUTION TO KNOWLEDGE**

Literature covers many factors affecting construction performance in South Africa and its impact on business performance, however, many of these studies have focussed on the relatively large organisations which often undertake large projects in the major cities of the economy (Windapo and Cattell, 2011; Thwala and Mvubu, 2009). ECs that constitute over 80% of the job market have been left out of the sampling frame, giving CIDB Grades 1 and 2 an impression that they are unimportant. However, although these businesses are classified as small, collectively they contribute substantially to overall construction GDP, especially in the municipal, provincial and local government activities. These ECs account for over 50% of all building materials production and nearly 80% of all short-term employment in many deprived communities in Gauteng (Windapo and Cattell, 2011). Furthermore, it is in the country's interest for there to be strong growth of ECs towards higher grades on the CIDB Register of Contractors (Windapo and Cattell, 2011).

Given that the ECs provide a basic foundation to the economy and also determine the productivity of investment and the rate of development in local townships of the Province, the research in the EC sector is driven by a need to emulate larger business's activities and establish a set of desirable management activities that ECs could implement. The view is supported by Gibson and Casser (2005), who argued that when these activities are passed onto small business management through appropriate knowledge dissemination processes there is an expectation of a more efficient and effective small business sector. Hence, the concern by CIDB about the capabilities of lower grade businesses on its register of contractors to develop would be reduced.

Specifically, there are no studies that effectively or clearly highlight the perceptions of SBEs as representatives of ECs on determinants of business performance. It therefore becomes imperative to further explore the determinants of ECs' performance by assessing the perceptions of SBEs in the construction industry as a different approach such that performance frameworks could be developed based on the perceptions generated. This study is a contribution towards achieving that. It is also an attempt to support the development of the ECs to build much-needed capacity which would enable them to seize more business opportunities, attain sustainable growth, and create better employment opportunities. This study provides evidence to policymakers, ECs' owners and other stakeholders on key variables that need closer attention to improve the success of ECs. Those significant variables that are controllable could be properly managed to increase the chances of ECs growth and profitability. More importantly, the results would facilitate performance prediction and explain the performance determinants of ECs, while serving as a source of reference for policymakers when formulating medium- to long-term development strategies for promoting the development of ECs.

Specifically, the impetus, importance and contribution for this study can be divided into three main areas:

1. Building small construction businesses capability to implement high performance strategic practices
2. Application of Critical Incident Technique (CIT) by small construction business leaders in South Africa to predict performance.
3. The use of SBEs' perceptions in determining business performance.

## **1.7 BRIEF DESCRIPTION OF THE CHAPTERS IN THIS THESIS**

The thesis is presented in seven chapters as follows:

- **Chapter 1: Introduction**

This chapter has outlined the background to the study, providing a theoretical foundation and the preliminary literature review that shape it. A problem statement and its rationale have been discussed, with the research questions, objectives and hypothesis have been presented. The chapter concluded by discussing the scope, perceived contribution to knowledge and the study environment.

- **Chapter 2: Theoretical analysis and Literature review**

This chapter gives a theoretical analysis of performance and reviews the literature relevant to the study. It provides a summary of the literature review in relation to the research questions and objectives. The literature examines the performance definition in construction industry, measurement of performance in the industry and the determinants of performance as they relate to the ECs registered with CIDB. A comprehensive review of the existing literature on ECs' performance is presented.

- **Chapter 3: Research methodology**

This chapter focuses on the research design and methodology of the study. Issues relating to research design, research philosophy, research strategy, population and sampling, data collection instruments, data analysis and pilot study are presented.

- **Chapter 4: Presentation of results**

This chapter presents the research results, in two parts, Part A the qualitative results and Part B the quantitative.

- **Chapter 5: Synthesis and analysis of the research results**

The qualitative and quantitative results are synthesised and analysed in this chapter. In addition, it ties together the information gathered during the literature review with the integrated results.

- **Chapter 6: Conceptual performance prediction model: Contribution to knowledge**

In this chapter, the conceptual performance prediction model developed is discussed as the contribution of the study. The discussion focuses on the structure of the model, how it is used, the advantages and disadvantages associated with it.

- **Chapter 7: Conclusion and Recommendations**

This chapter presents the conclusions and recommendations of the study. The implications and limitations of the study are also presented.

## **1.8 SUMMARY OF THE CHAPTER**

The scene for the study has been set in this chapter, the problem statement; the research questions, the objectives and the hypothesis have been defined. The background to the RSA construction industry as it relates to ECs has been given. The scope and the perceived contribution of the study to the body of knowledge have also been discussed.

The next chapter provides a theoretical analysis of performance and reviews the literature relevant to the study.

## CHAPTER TWO

### THEORETICAL ANALYSIS AND LITERATURE REVIEW

#### 2.1 CHAPTER INTRODUCTION

This chapter forms the foundation on which this research is built. The purpose of the review was to help develop an understanding and provide insight into relevant previous research and the trends that have emerged. As such, a critical review of literature provided different theoretical perspectives, controversies and limitations on theories and methodologies used before. The literature sources used in this study include professional journals, books, newspapers, conference proceedings, government reports and thesis.

The chapter is divided into five sections based on issues of performance construct:

- The first section deals with the theoretical foundation of the study (Yang *et al.* 2010, Beatham *et al.* 2004, Bassioni *et al.* 2004, Dlungwana *et al.* 2002, Kaplan and Norton, 1992).
- The second section examines business performance domain focusing on the conceptualization of performance (Idrus and Sodangi 2010, Mbachu and Nkado 2006, Tangen 2005, Ling 2004, Kagioglou 2001, Murphy *et al.* 1996, Keats and Bracker 1988, Venkatraman and Ramanujam 1986, Peters and Waterman 1982).
- The third section focusses on the measurement of performance in business (Langston 2012, Tsolas 2011, Sillars 2010, Rwelamila and Asalan 2010, Yang *et al.* 2010, Lam and Wong 2009, Zwikael 2008, Jin *et al.* 2007, Bassioni *et al.* 2005, Cox *et al.* 2003, Neely *et al.* 2002, Kagioglou *et al.* 2001, Yu *et al.* 2007, Pheng and Chuan 2006, Cheung *et al.* 2004, Pfeffer 1978).
- The fourth section looks at the facilitators and impediments of construction business performance (Gasa, 2012, Greyling 2012, Ladzani *et al.* 2012, Baloyi and Bekker 2011, Emuze 2011, Dlungwana, Kandie and Ngassam 2009, Enshassi, Mohamed and Abushaban 2009, Thwala and Mvubu 2009, Mbachu and Nkado 2007, Faridi and El-Sayegh 2006, Chan and Chan 2004), and
- The last section points out the gap in knowledge that is addressed by this study.

### 2.1.1 The concepts of study

The study environment takes account of the small construction industry in Gauteng, in particular the changing trends and economic indicators. The existence of infrastructure and location of future infrastructure exert substantial influence on the performance of the economy and therefore the construction industry. Currently, the provincial government is investing billions of rand in multi-pronged infrastructure development projects in a bid to stimulate economic growth and create jobs (City of Johannesburg Website, accessed 15 August 2014).

Gauteng Province is the economic powerhouse of the RSA and makes the largest contribution to GDP (37.73% compared to second-placed KZN at 14.9%) (Van Wyk *et al.*, 2011). The continuing deterioration of infrastructure is cause for concern, for example, the national government considered giving the city of Johannesburg an R800 million capital injection to boost the city's run-down electricity infrastructure (*Engineering News*, 2005). An information communication technology hub in Nasrec in Soweto, Smart City and continuing provision of housing are some major projects for the Province.

The construction industry is large, diverse and complex, playing an important role within the built environment industry (Ladzani *et al.*, 2010:45), which in turn is indispensable to the national economy as it provides the physical infrastructure necessary for development (Marx, 2012:2). The construction industry is responsible for about 12% of the gross domestic product (GDP) and in 2008, construction investments accounted for up to 60% of all investments in SA (Marx, 2012).

The focus of the study is on both building and civil projects, the latter consisting mainly of investment in economic infrastructure such as transport, housing, water and sanitation services, energy and mining, investment funded primarily by government and state-owned enterprises including *Eskom*, *Transnet* and *ACSA*.

### ***2.1.1.1 Gauteng Province - A brief profile***

Gauteng is the smallest of the nine Provinces in South Africa, with a land area of 18,178 square kilometres (Census, 2011:9). Landlocked and surrounded by Limpopo, Mpumalanga, North West and Free State Provinces, it is divided into three metro municipalities, and two district municipalities, which are further sub-divided into eight local municipalities (see Table 2.1 and Figure 2.1 below). While being the smallest Province it the most highly populated, being home to 12.2 million people (Census, 2011:18), almost 25%% of the national total. The fastest growing Province, it experienced a population growth of over 33% between the 1996 and 2011 censuses, and as with the others it continues to experience challenges of high levels of unemployment, chronic poverty and unemployment. It requires job creation, provision of infrastructure, development of small businesses education and skill development (GautengOnline, 2014:3).

The development of ECs in Gauteng Province is one aspect of SMME that is critical to the Province, in terms of employment creation and poverty alleviation. In line with the national policies towards the development of SMMEs, the Province has made significant and innovative advances in supporting the development of SMMEs, for example, the establishment of an SMME Agency which is meant to provide financial and non-financial support to SMME's and information on services of SMME's, facilitate partnerships between big business and the SMME sector, and create procurement opportunities for the SMME sector and networking with other sectors of society (Gauteng online, 2005: 19).

The types of construction projects common in Gauteng that are the focus of this study are found in the following areas:

- Construction of provincial and government buildings
- Industrial facilities and commercial buildings
- Public housing, hospitals and schools
- Power station plants
- Roads and transportation
- Water purification plants

**Table 2.1: Gauteng district and local municipalities**

Johannesburg Metropolitan	Tshwane District	Ekurhuleni Metropolitan	Metsweding District	West Rand	Sedibeng District
Midrand	Pretoria	JHB Int. Airport	Cullinan	Magaliesburg	Heidelberg
Sandston	Centurion	Bedfordview	Bronkhorstsp ruit	Muldersdrift	Vereeniging
Randburg		Benoni		Krugersdorp	Vanderbijlpark
Johannesburg		Boksburg		Carletonville	
Soweto		Springs			

Source: Own Compilation

**Figure 2.1: Map of Gauteng province**



Source: [www.sleeping-out.co.za/Gauteng-Map.asp](http://www.sleeping-out.co.za/Gauteng-Map.asp)

## **2.2 THEORETICAL FOUNDATION OF THE STUDY**

Over recent years, companies in Europe and the USA, as a result of the success of Japanese counterparts, have begun to take a wider view of performance measurement, with various quality awards and theories being introduced during the 1980s (Beatham, Anumba and Thorpe, 2004:99). A number of frameworks have subsequently been developed that have a bearing on this thesis, however, theoretical consideration is focussed on the European Foundation for Quality Management (EFQM) Excellence Model in Europe, the KPI model, the Balanced Scorecard (Kaplan and Norton (1992) and the South African construction Excellence Model (SACEM) (Dlungwana *et al.*, 2002). Whilst these frameworks are different in the way they address the issue of performance, they can however coexist simultaneously (Bassioni, Price and Hassan, 2004:44).

### **2.2.1 The European Foundation for Quality Management Model (EFQM)**

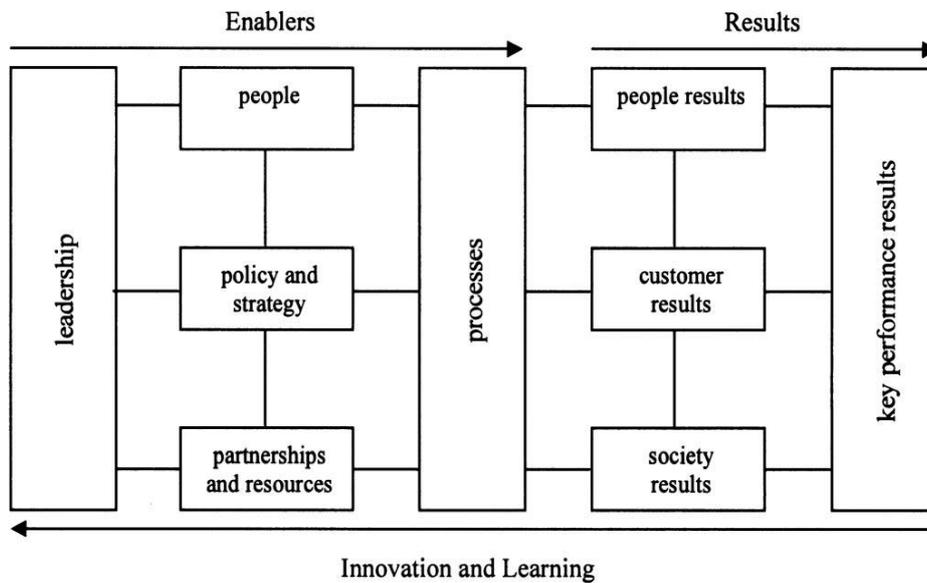
The EFQM excellence model was developed in Western Europe in 1989 (Yang, Yeung, Chan, Chiang and Chan, 2010:273) to allow companies to assess their positions on the path to excellence (Bassioni *et al.*, 2005; Beatham *et al.*, 2004). The model is regarded as a self-assessment tool, which enables a comprehensive, systematic and regular review of an organisation's activities and results (Beatham *et al.*, 2004:100). It is based on key fundamental concepts of excellence that include enabling and results criteria (Bassioni *et al.*, 2004 & 2005). The enabling criteria include: leadership; customers and stakeholder focus; strategic management; information and analysis; people; partnerships; suppliers; physical resources; intellectual capital; risk; work culture; and process management (Yang *et al.*, 2010; Beatham *et al.*, 2004). The results criteria include: internal stakeholder; project; external stakeholder and organisational business results (Yang *et al.*, 2010; Beatham *et al.*, 2004).

According to Bassioni, Hassan and Price (2008:24), leadership should guide the focus of the organisation on customers, people and other relevant stakeholders who in turn should guide the development of strategic processes for implementation plans. The strategic plans are detailed into functional or programmatic business plans that are translated into processes for implementation (Bassioni, Hassan and Price, 2008:24). Once implemented for projects and throughout the organisation, improved internal stakeholder results should

start to appear. Consequently, this would reflect on project results that affect customer and external stakeholder results not under the direct managerial influence of the organisation. The outcome would be reflected in the organisational level results. Work culture is driven by leadership and affecting other enabling criteria while information and analysis is driven by leadership and supports all other criteria throughout the model (Bassioni, Hassan and Price, 2008:24).

The model has been widely used and examined by many construction companies in recent years (Yang *et al.*, 2010; Bassioni and Price, 2008), its main advantage being that it provides a perspective to integrate result areas (lagging indicators) and organisation areas (leading indicators) in one model (Lin and Shen, 2007:6). Bassioni, *at el.* (2008:22), Robinson *et al.*, (2005) reported that construction firms considered the EFQM model as less difficult than the Balanced Scorecard (BSC) (Kaplan and Norton, 1992, 1993, 1996) in terms of determining and monitoring indicators. They attribute this to the presence of enabling criteria in the EFQM, which are not clear or comprehensive in the BSC (Bassioni *et al.*, 2008:22). The EFQM excellence model is applied at the organisational and project level (Yang *et al.*, 2010:274), as well-defined and easier for construction companies to understand and implement (Robinson *et al.*, 2005:18). However, implementation problems, as reported by Watson and Seng (2001), cited in Robinson *et al.*, (2005:14), include resistance to change, inexperience of organisations with the model, documentation difficulties and insufficient time and fund allocation. Furthermore, there is no evidence that suggests the model could fit in a competitive environment such as South Africa since it was developed in a Western environment. The structure of the EFQM excellence model is shown in Figure 2.2 (below).

**Figure 2.2: The EFQM Excellence Model**



Source: Adapted from Bassioni *et al.*, (2004)

### 2.2.2 Key performance indicators model

The Latham report advocated improvement in the efficiency and competitiveness of the industry through reforms in contracting, tendering, design process, quality management, productivity, training, education and other issues (Egan, 1998:4). In his report to the government, Egan (1998) described how the U.K. construction industry, at its best, displays excellence, but there were deep concerns that the industry was underachieving and that substantial improvements in quality and efficiency were possible (p.6). Egan (1998:6-7) reported that the industry was low on profitability and invested too little in capital, research, development and training, with too many clients dissatisfied with its overall performance. Egan (1998:10) identified specific targets for improvements in terms of productivity, profits, quality, safety and project performance and, most importantly, the ambitious targets and the role of performance measurement in delivering improvement.

The purpose of the KPI framework was to enable measurement of both project and organisational performance throughout the construction industry (The KPI Working Group, 2000:7). The KPIs were designed as a benchmark for the whole industry, where companies could measure themselves against national performance and identify areas for

improvement (Haponava and Al-Jibouri, 2010:141). However, they do not give insight into the means of improving performance and are limited for internal management decision-making (Kagioglou *et al.*, 2001:89). The UK system of KPI assessment as reflected in Table 2.2 (below) shows that the number of KPIs measured and reported in the UK has increased over time, which could be attributed to the involvement of multiple stakeholders in the process.

**Table 2.2: Current set of UK KPIs being measured and reported**

<b>ECONOMIC KPIs</b>	<b>SOCIAL KPIs</b>	<b>ENVIRONMENT KPIs</b>
Client satisfaction-Product	Employee satisfaction	Environmental impact
Client satisfaction- service	Staff turnover	Energy use-product
Defects	Sickness absence	Energy use-process
Predictability-Cost	Safety	Water use-product
Predictability-Time	Working hours	Water use-process
Safety	Qualifications and skills	Waste removed from site
Productivity	Equality and diversity	Commercial vehicle movements
Profitability	Training	impact on biodiversity
Construction cost	Pay	Area of habitat created / retained
Construction time	Investors in people	Whole of life performance – product

**Source:** Furneaux, *et al.* (2010)

Similar to the KPIs are the construction industry indicators (CIIs) in South Africa (Marx, 2013:2). However, they were benchmarked within the construction industry and have been successful in introducing many companies to the subject of performance measurement (Beatham, *et al.* 2004:102-104). CIIs were developed to play a useful role in developing a sustainable industry and to be adopted as a tool for improving performance in the construction industry, however, they now measure the performance of the construction

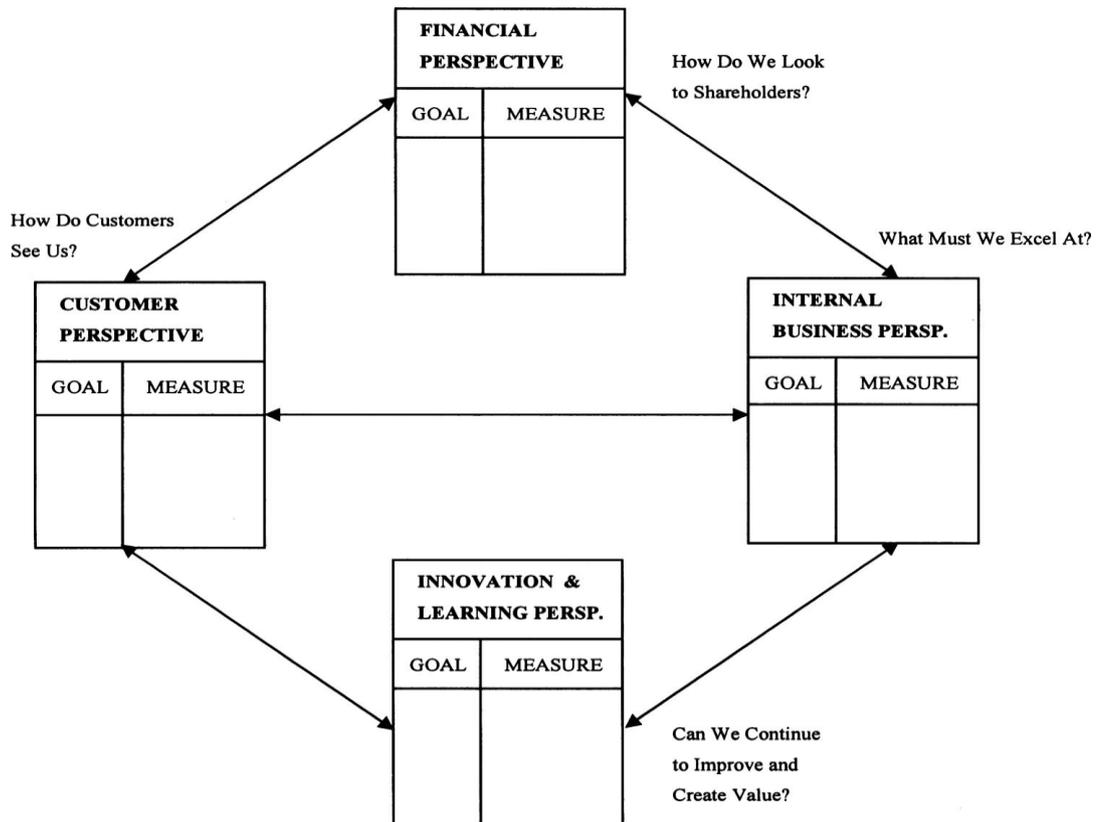
industry at individual project level (Marx 2013:2-3). The measures include employer satisfaction, contractor's performance, and quality of materials used, profitability, the performance of the employers and their agents, the quality of the contract documentation, the management of variation orders and claims, payment delays and the performance of materials suppliers (Marx 2013:3).

### **2.2.3 The Balanced Scorecard and performance**

Kaplan and Norton (1992) introduced the Balanced Scorecard (BSC) as a management system that enables organisations to clarify their vision and strategy and translate them into action. The BSC can help in reaching the organisation's objectives, formulation of strategy, generation of plans and budgets, and the setting up of an information system for performance monitoring and management (Beatham, *et al.* 2004:101). It provides a balance between economic and operating performance, financial and customer outcomes, short- and longer objectives of an organisation (Luu, *et al.* 2008:375). The BSC framework allows organisations to look at performance from four perspectives (Yang, *et al.* 2010:274; Beatham, *at el.* 2004:101; Punniyamoorthy and Murali, 2008:426):

- Financial: How do we look to our shareholders?
- Customers: How do our customers see us?
- Innovation and improvement: How can we continue to improve our processes?
- Internal process: What must we excel at?

**Figure 2.3: The Balanced Scorecard**



**Source: Adapted from Bassioni *et al.*, (2004)**

The BSC leads to a cascading set of indicators which enable the units within the organisation to coordinate targets and behaviour with its overall strategy (Beatham, *et al.* 2004:101). It provides leading and lagging indicators to evaluate congruence between the performance of an organisation and its strategic goals (Kagioglou, *et al.* 2001:87) and results in a better indication of an organisation's performance than merely financial measures (Hepworth, 1998:561, cited in Luu, *et al.* 2008:375).

The BSC framework is the most actively used worldwide measure and is frequently applied as a powerful communication tool for performance measurement (Yang, *et al.* 2010:274). However, it has major limitations in target-setting and can provide a consolidated metric of performance only when combined with other methods (Tsolas, 2011). It is difficult and time-consuming to implement and requires a high-ranking champion and adequate funding to meet the challenges of change in order to implement the framework. However, it does ignore the market perspective, and its absence of any

mention of suppliers and disregard for the human element are its major weakness (Luu, *et al.* 2008:375).

According to Neely and Bourne (2000:1-6), the majority of BSC implementation initiatives in firms fail because of difficulties during the implementation phase which include frameworks that are poorly designed and difficult to implement. This applies to the four perspectives of the BSC that have been considered insufficient, such as competition and employees, as well as application of specific perspectives, such as project and supplier for construction. The BSC is considered to be simpler, clearer and more comprehensive than the EFQM excellence models, and as Robinson, *et al.* (2005:18) argue, the BSC is less a structured or holistic tool and the framework is more widely applied in larger organisations. Although BSC is superior to the EFQM excellence model in assessing strategic measures, both models have a major limitation in target-setting. In particular, in the BSC, targets are not addressed, whereas in the EFQM excellence model, targets are not specific (Tsolas, 2011).

Kagioglou *et al.* (2001) proposed the Performance Measurement Process Framework (PMPF) as an extension of the BSC model of Kaplan and Norton (1992), but with the addition of project and supplier perspectives that can be tailored to construction industry needs. The framework comprises three components:

1. *The inputs*, which details that any performance management system need to have strategy as the main input so that any results coming out of the system can be used to evaluate the extent to which the organisation has met its strategic goals (Kagioglou, *et al.* 2001:90).
2. *The process*, which takes the strategy as an input, deploys it so that it can derive a number of organizational goals or objectives, develop measures which are effectively activities and are directly related to strategy, add value to the strategy by examining its validity and implementation and deliver the performance results to the organisation or its shareholders and customers (Kagioglou, *et al.* 2001:90)
3. *The output*, the results give an indication of the extent to which an organisation has achieved its goals (Kagioglou, *et al.* 2001:91).

The PMPF model integrates the main themes of performance management in a simple performance measurement relationship matrix such as arrangement (Kagioglou, *et al.* 2001:85).

#### **2.2.4 The South African construction engineering model (SACEM)**

The SA Construction Model (SACEM) is a business performance assessment tool developed to evaluate the overall performance of contractors in addressing many challenges faced by the contractors (Dlungwana and Rwelamila 2005:2-3). It embraces the principles of strong leadership, a long-term approach, continuous improvement, client focus, people management and results orientation. The model uses a questionnaire-based scoring technique to evaluate the contractor's level of development and the extent to which best practices are embraced (Dlungwana and Rwelamila 2005:2-3).

SACEM provides an objective assessment of the contractor's strengths and areas for improvement. More than just an assessment tool, it contributes to the national strategy for developing the construction industry by facilitating the rapid adoption of the best practice that ensures improvement in contractors' productivity, competitiveness and strategic management of social and environmental issues. The management of socio-environmental performance should be achieved in parallel to profitability and growth performance (Dlungwana and Rwelamila, 2005:3).

The key benefits of SACEM as identified by (Dlungwana, *et al.* 2002:7) include:

- Standard, structured tool to assist contractors assess and improve performance through higher productivity, quality and effectiveness.
- A useful performance benchmarking tool for contractors.
- Risk management tool for the construction clients. Contractors' risk profiles will be easily identifiable and managed appropriately.
- Tendering costs can be reduced for both the clients and contractors if SACEM is used as a prequalification system.

- Results from using SACEM can add value for money to projects and therefore satisfaction for clients, taxpayers and end-users.

Other than the SACEM, there are many models that have been developed in South Africa, as a combination of the Expanded Public Works Programmes (EPWP) and ECDP models, but they are being applied across all grades and so undermine the objectives of contractor development and job creation (Greyling, 2012:23). Rather, programmes should be clearly designed to achieve a clear objective, whether it is workforce development, job creation, development of emerging contractors, enterprise development or improving the performance of established contractors (Greyling, 2012:23; Gasa, 2012:58). Against this argument it would be inappropriate to apply the SACEM model to CIDB Grade 2 contractors without some modification.

Having discussed the theories that have a bearing on this study the next section presents the literature review.

### **2.3 DEFINING PERFORMANCE**

Despite studies that have reviewed the performance construct of construction businesses (e.g. Windapo and Oladapo, 2012; Ladzani, Smith and Pretorius, 2012), the subject of performance has continued to challenge management commentators and practitioners for many years (Gibson and Casser, 2005:208). Performance has been used in some cases to describe concepts such as efficiency, effectiveness, improvement, growth and success and the terms have been used interchangeably (Akbaba, 2012:180; Reijonen and Komppula, 2007:690). According to Venkatraman and Ramanujam (1986:801), the treatment of performance in research settings is perhaps one of the most problematic issues confronting the academic researcher, because what performance means or what are appropriate operational definitions are not always clear (Gibson and Casser, 2005:208). As a result of varying perceptions on performance, the concept varies amongst organisations and thus leads to disagreements about whether an organisation is performing or not.

As suggested by Murphy, *et al.* (1996:15), definitions of successful performance and the variables used to measure performance vary widely. Performance may have a different set of meanings for small as opposed to large businesses and consequently it may be

inappropriate to apply similar measures to its assessment (Keats and Bracker, 1988:53). Performance can therefore take on different meaning depending on the context in which it is being used (Idrus and Sodangi, 2010:34), but a general understanding in the construction studies is that it is a multifaceted phenomenon and includes unit cost, construction and delivery speeds, and the level of client satisfaction (Ling, 2004:129). The importance of identifying ECs' performance has been apparent in South Africa over recent years, and could be communicated to the wider market, i.e., to be understood and interpreted by policymakers, community, potential investors, employees and customers (Kagioglou, 2001:86).

This section pays attention to business performance and project performance since the effectiveness of the construction business is based on the two. It is important to show that one is either measuring business performance or project performance, especially in a study involving performance measurement (Tangen, 2005:40). However, both tend to achieve the same objective (Tangen, 2005; Venkatraman and Ramanujam, 1986), and seek information on effectiveness (doing the right thing) and efficiency (doing the right thing right) (Idrus and Sodangi, 2010:34). According to Peters and Waterman (1982), an organisation is effective if it is able to manage ambiguity, is flexible, customer-oriented, productive, value-driven and structurally lean in form, and if it knows its major area of business and greatly empowers its people. As support for this alternative, SBEs' function is primarily focused on overall business success, which is a combination of retention of markets in the long term and with obtaining income, through project execution to fuel the operations and growth of the business (Sillars, 2010:10).

Kagioglou (2001:88) and Ward, *et al.* (1991) describe how when assessing the success or failure of construction projects a common approach is to evaluate performance on the extent to which client objectives like cost, time and quality were achieved. These three indicators of performance used in the UK construction industry provide an indication as to the success or failure of a project but do not, in isolation, provide a balanced view of the business's performance, as usually they are implemented at the end of the project and are classified as lagging rather than leading indicators (Kagioglou, 2001:88).

As indicated above, performance is difficult to define, describe or measure systematically (Akbaba, 2012:180), particularly whether an EC is successfully performing or failing as the definition and the concept of success remain vague among stakeholders. However, for

those involved in the construction business, performance may be thought of as the achievement of some predetermined goals while the general public may have different views of performance, which are commonly based on user satisfaction. There are a multitude of definitions in literature, however, the following performance definitions guided this study:

- A subset of organisational effectiveness that covers operational and financial outcomes (Santos and Brito, 2012:98).
- Performance is a measure that reveals the operational efficiency and growth of the business (Alarape, 2007).
- The act of performing, of doing something successfully, using knowledge as distinguished from merely possessing it (Herrington and Wood, 2004).
- The ability of an object to produce results in a dimension determined a priori, in relation to a target. This performance has traditionally been measured in financial terms (Laitinen, 2002).
- The ability of small businesses to contribute to job and wealth creation through business start-up, survival and growth (Sandberg, *et al.* 2002).
- In construction traditionally, performance is approached in two ways (Kagioglou, 2001): In relation to the product as a facility (prime assessment of construction projects in terms of success or failure), and in relation to the creation of the product as a process.
- Liu and Walker (1998) note that, in construction, performance is evaluated by stakeholders' value judgments and is thus framed by their values, experience, and expectations rather than performance factor targets alone.
- The three specific areas of business outcomes: (a) financial performance (profits, returns on assets, return on investment etc.); (b) product market performance (sales, market share); and (c) shareholder return (total), economic value added (Venkatraman and Ramanujam 1986).

- According to de Wit (1998), the project is considered an overall success if it attains the technical performance specifications and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among: key people in the parent organisation, key people in the project team and key users or clientele of the project effort.

While the above definitions are important in guiding this study, they lack unique characteristics of the underlying domain upon which performance construct could be understood within the EC environment. Based on the above definitions, in this study, where the focus under consideration is on ECs, performance is regarded as a measurement or indicator that reveals the overall business goals, that is, what the business wants to achieve or the goals it has set. This definition incorporates both quantitative and qualitative capacity of ECs, including meeting schedule requirements of the project, meeting functional requirements of the project, meeting client satisfaction, building quality and meeting health and safety standards.

## **2.4 MEASURING PERFORMANCE IN CONSTRUCTION BUSINESS**

Based on the variety of definitions of performance construct discussed in the previous section, there is no common understanding upon which performance is measured. Within South Africa context there is no common scale that has been developed to measure the performance of ECs, yet the measurement of performance of ECs is fundamental to business executives planning and control. It has however received considerable attention from both academicians and practitioners (Tsolas, 2011), albeit complicated by lack of obvious measures ECs and other parties adopt and that would be most relevant to the business as they change over time (Lam and Wong, 2009; Jin, *et al.* 2007; Bassioni, *et al.* 2005; Cox, *et al.* 2003).

To guide this study, the performance measurement definitions of Yang, *et al.* (2010) and Neely and Adams (2002) are adopted. The former define performance measurement as the process whereby an organisation establishes the parameters within which programmes, investments and acquisitions are reaching the desired results, while the latter regard performance measurement as the process of quantifying the efficiency and effectiveness of past actions as a parameter used to quantify their efficiency and effectiveness.

The most commonly accepted performance measures are those that can be physically measured in monetary terms (quantitative measures), units, or work hours (Cox, *et al.* 2003:143; Kagioglou, *et al.* 2001). These are important as contractors look first to the areas which show a change in the amount of revenue generated. In construction, performance measurement has been predominantly focused on project performance in form of time, cost and quality (Pheng and Chuan 2006:25; Bassioni, *et al.* 2005), however, in recent years, indicators have extended to include client satisfaction, business performance, health, safety, government and environment (Langston 2012; Yang, *et al.* 2010; Yu, *et al.* 2007; Cheung, *et al.* 2004; Kagioglou, *et al.* 2001:89).

The advantages of quantitative measures include simplicity, being easy to gather and apply while not placing a heavy burden on field personnel. On the other hand, qualitative performance indicators are not commonly accepted as reliable tools due to their perceived difficulty and inability to be measured (Cox, *et al.* 2003:144). Unlike quantitative indicators, qualitative indicators do not appear in the estimating or costing system utilised by the majority of construction businesses. In this study qualitative measurements were considered more suitable than quantitative measurements because it focuses on SBEs' perceptions of performance determinants. Yang, *et al.* (2010) undertook a critical literature review of performance measurement in the construction industry and classified performance measurement into three levels: project, business, and stakeholder.

#### **2.4.1 Project performance**

Project management provides services to a client's projects and in return acquires income which fuels the growth of the business and its assets. The project receives direction and support from executive management and acquires resources from the asset management portion of the organisation (Sillars, 2010:10). Traditionally, the success of a project hinges on the performance of project managers, with emphasis on the achievement of time, cost and quality targets (Pheng and Chuan, 2006:25). According to Rwelamila and Asalan (2010:1190), the common causes of project failure include lack of clear links between its and the business's key strategic priorities, such as agreed measures of success; lack of clear senior management and leadership; lack of effective engagement with stakeholders; lack of skills and proven approach to project management and risk management; too little attention to breaking development and implementation into manageable steps; evaluation

of proposals driven by initial price rather than long term value for money; lack of understanding of, and contact with the supply industry at senior levels in the business; and lack of effective project team integration between clients, the supplier team and the supply chain. As a result, the active involvement of senior managers of a performing organisation can help project managers to successfully complete the project (Zwikael, 2008:498).

#### 2.4.2 Business performance

The goal of any business and its ownership is to be successful at survival. In order to achieve business goals the objectives of profitability, growth (in terms of market share) and survival must be achieved. The exchange framework is important in modelling the interaction between the business and its clients as the exchange relates to primacy of successfully meeting the business's goal (Pfeffer and Gerald 1978). According to exchange theory, the source of the exchange for an organisation is its immediate clients, from which it derives return and the market from which it obtains future clients. Business success is defined from an individual enterprise's point of view by reward (business income) and the maintenance or gain of market position of the business to ensure continued viability (retained market position). These relationships are shown in Figure 2.4 (below). Business success is connected to the relationship between the enterprise and its clients. Markets are assemblies of clients and income is derived from clients through the provision of project management services to clients (Sillars, 2010:10).

**Figure 2.4: Causal relationship to business Success**



Source: Adapted from Sillars (2010)

In the relationship in Figure 2.4, SBEs' function is primarily focused on overall business success, which is a combination of retention of markets in the long term and with obtaining income through project execution to fuel the operations and growth of the business (Sillars, 2010). Accordingly, SBEs provide strategic and management direction to both business income and retained market position (Sillars, 2010).

### **2.4.3 Stakeholder performance**

While time, cost and quality have been noted as three dominant performance evaluation dimensions, Pheng and Chuan (2006) identified performance indicators related to the owner, users, stakeholders and the general public, the groups of people who look at the business performance from the macro viewpoint (Wang and Huang, 2006). In China, public feedback helps to instil environmental awareness in the project team and this is necessary to establish channels for the public to lodge their complaints. During project delivery, the ability to control environmental disturbances and site safety effectively would lead to higher public satisfaction for the project, which shows that when public satisfaction is achieved, there would be reduced complaints and increased public recognition for the project, thereby increasing owner's satisfaction (Ling, *et al.* 2009).

However, in this thesis performance measurements used in construction business have been discussed under the following headings.

- **Measuring cost / Budget performance**

Cost performance is judged relative to an agreed budget (Langston 2012). For example, project cost involves monitoring performance by comparing current costs accrued to the budgeted costs in rand allocated for the work in place completed to date. The cost reporting may be used to predict the success or failure of the overall construction effort (Enshassi, Mohamed and Abushaban, 2009; Cox, *et al.* 2003). Completion close to budget is usually preferable, and in some cases being well below budget is seen as an advantage, although often not. Clients tend not to like surprises, so the final project cost should be the result of prudent cost management processes and therefore, by definition, deliver an end-result close to the agreed budget (Langston, 2012). Construction cost is measured in

financial terms and focus on the building rather than the land. The costs are determined on common date which is undertaken using building price indices that reflect inflationary change appropriate to the current level of construction intensity. The pricing takes into account related construction items such as labour, material and plant.

- **Measuring time**

Time performance refers to the duration for completing a project (Chan and Chan, 2004; Cox, *et al.* 2003). On-Time completion serves as a holistic measurement of performance according to scheduled duration (Cox, *et al.* 2003). Time on construction projects can be measured in days, weeks or months, however, large projects take more time to construct than small projects, and a reasonable KPI might be square metres of gross floor area completed per month. This is an output measure describing production (Langston, 2012). On-time milestone completion determines if construction is proceeding according to schedule.

- **Measuring quality**

Ling, *et al.* (2009) define quality as the output quality of the service rendered or work done to technical and workmanship standards. It is the degree to which general conditions promote meeting the project's established requirements for materials and workmanship. In other words, the contractor must ensure the project satisfies the needs for which it was undertaken (Enshassi, *et al.* 2009; Mbachu and Nkado, 2007; Faridi and El-Sayegh, 2006). The expectation is to receive what is specified, no more and no less, and often this is judged in the detail of the finish and the workmanship applied.

Quality performance involves collection of issues such as identification of defects and craftsmanship. The improvement of quality can reduce the resources and costs that must be devoted to reworking, which when reduced increases profitability (Ling, *et al.* 2009). In construction, it is important not only to control the quality of the product but also to measure and control the various processes involved in the project if one is to satisfactorily achieve the end project goals (Haponava and Al-Jibouri, 2010). Quality measures

identified in literature include: meeting quality standards, conformance to specifications, customer satisfaction, and community satisfaction.

- **Measuring profitability**

The contractor's satisfaction is measured by their profitability (CIDB, 2013). The individual indicators underlying the performance of construction business are characterised by company financial soundness, which is related to profitability, financial autonomy, liquidity and value added (Horta, *et al.* 2012). Business profitability is one performance dimension that has frequently recurred in literature. Profit is a basic goal for running a business and it is derived from the performance of the project. Some of the commonly used profitability measures include:

$$\text{Return on Sales} = \text{Net Marketing contribution} / \text{Sales Revenues} \times 100\%$$

$$\text{Return on investment} = \text{Net Marketing Contribution} / \text{by Expenses} \times 100\%$$

$$\text{Return on assets} = \text{the profit margin and the asset turnover.}$$

- **Measuring sales growth**

There is a general belief amongst marketing and sales executives, as well as general managers and SBEs, that if more volume of products could be sold to the customer more market share and more sales revenues would be achieved, and the business would increase profits (Best, 2005). In many instances this has been the case, however, firms need to be careful when using price to achieve this objective (Best, 2005). The objective of a pricing strategy should be to improve profits, to determine what price produces a combination of volume and margin that increases the business's total contribution. When the total contribution produced by a pricing strategy is lower, overall profits would also be lower because fixed costs are deducted from the total contribution. There is too much focus on low prices at the tender stage by ECs in South Africa (CIDB, 2102).

$$\text{Total contribution} = \text{volume (units)} \times \text{margin (per unit)}$$

Of all the financial indicators, sales growth is likely to be free of most potential bias.

- **Measuring market share**

Market share is the most common marketing strategy to grow revenue and profits and is the percentage of current market demand obtained by a business (Best, 2005). According to Kotler and Keller (2006), a useful way to analyse market share movements is in terms of four components indicated below:

Overall market share = Customer penetration x customer loyalty x customer selectivity x price selectivity.

Where:

Customer penetration: percentage of all customers who buy from the company.

Customer loyalty: purchases from the company by its customers expressed as a percentage of their total purchases from all suppliers of the same products.

Customer selectivity: size of the average customer purchase from the company expressed as a percentage of the size of the average customer purchase from an average company.

Price selectivity: average price charged by the company expressed as a percentage of the average price charged by all companies.

- **Measuring productivity**

Productivity enables an organisation to be competitive, achieve set goals, meet stakeholder value propositions and maintain strategic and financial health (Mbachu and Durdyev, 2011). According to Cox, *et al.* (2003), a typical way to measure productivity includes units per man hour, rand per unit, resource management (the amount of materials, tools and equipment expended during the construction operational activities), quality control, rework and % complete.

- **Measuring client satisfaction**

Construction clients demand the timely completion of projects without delay or additional cost (Greyling, 2012, Akinsiku and Akinsulire, 2012; Mbachu and Nkado, 2007). The level of satisfaction of a client with a contractor's performance on a project is an important indicator (or measure) of its ability to execute and complete within the required expectations of the client (Akinsiku and Akinsulire, 2012; Mbachu and Nkado, 2007; Jin, *et al.* 2007; Cox, *et al.* 2003). According to Bassioni, *et al.* (2004), what remains in the mind of participants after project completion is not so much financial success or early completion, but memories of harmony, goodwill and trust, or, conversely, arguments, distrust and conflict. Motete, *et al.* (2003) examined the causes of client dissatisfaction in South Africa building industry and found that conflict, poor workmanship and incompetence of contractors were among the factors that negatively impacted on project performance. If clients' stated needs or developmental requirements could sufficiently address the real needs and objectives for investment, delivering the project within time, quality and cost targets could translate to satisfaction (Mbachu and Nkado, 2001).

- **Measuring community satisfaction**

Another way of evaluating performance relates to the general public, the groups of people, who look at project performance from the macro viewpoint (Enshassi, *et al.* 2009; Pheng and Chuan, 2006). In South Africa it is important for the public to give feedback as this helps to instil environmental awareness in the project and provide channels for them to lodge complaints.

- **Measuring contractual disputes**

Construction delays result in cost overruns and poor quality, which in turn lead to contractual disputes. In South Africa, most claims are related to the time of the project delivery. The ability to manage change without unnecessary claims is critical in the routine assessment of subcontractors' performance (Mbachu, 2008). The absence of claims or contractual disputes is a fair indicator of project success (Chan and Chan, 2004).

- **Measuring employee job satisfaction**

While job satisfaction is regarded as a soft measure it has been benchmarked with a company's performance (Thwala, *et al.* 2012; Beatham, *et al.* 2004). Job satisfaction measures include the extent to which employees in construction gain enjoyment of satisfaction from their efforts at work (Lai and Lam, 2010). In a way, the satisfaction of interpersonal relations among team members comes into play to determine project performance. Happy employees are productive while unhappy ones are not, hence, success of a construction business depends on the level of satisfaction of workforce (Lisa and Judge, 2004).

- **Measuring health and safety**

Safety may be used for performance reporting by measuring the change in the number of accidents or safety-related problems on the job site (Jin, *et al.* 2007), recordable incident rate (RIR), and lost workday case incident rate (LWCIR) (Costa and Formoso, 2003).

- **Measuring environmental factors**

The issue of environmental performance measure was highlighted by Chan and Chan (2004) and it relates to waste management and public nuisance.

- **Measuring critical incidents**

Critical incident technique (CIT) is a qualitative interview procedure which facilitates the investigation of significant occurrences (events, incidents, processes or issues) identified by the respondent, the way they are managed and the outcomes in terms of perceived effects (Chell, 1998). The objective is to gain understanding of the incident from the perspective of the respondent, taking into account cognitive, affective and behavioural elements. The key criterion for CIT inclusion is that, from the executive's perspective, the incidents that led to high (or low) business performance are presented. The CIT is frequently used to collect data on observations previously made which are reported from

memory. This is usually satisfactory when the incidents reported are recent and the observers were motivated to make detailed observations and evaluations at the time they occurred (Flanagan, 1954).

CIT has been deemed appropriate by Keaveney (1995) in a study of customers switching behaviour in the service industries and the technique is supported in the service research literature (Matos, *et al.* 2009; Zeithaml, *et al.* 2006; Gremler, 2004; Holloway and Beatty, 2003; Bansal and Voyer, 2000). The technique has been applied successfully in hotels and restaurants (Bitner, *et al.* 1994), airlines (Edvardsson, 1992), retailing (Bell, Gilbert and Lockwood, 1997; Kelly, Hoffman and Davis, 1993), banking (Mattsson and Helmersson, 2005), and travel and tourism (Serenko and Stach, 2009). It has also been successfully applied in marketing to analyse the content of advertising and retail store image (Kassarjian, 1977; Bitner, *et al.* 1994). Both the reliability and validity of the technique have been demonstrated (White and Locke, 1981).

In this study, the CIT was utilised when collecting qualitative data relating to incidents encountered by SBEs. These would be financial issues, manpower factors, material, machinery and equipment, quality issues, project delay factors, legal and environmental factors and strategic planning. The CIT developed by Flanagan (1954) has been identified as a qualitative technique that could be appropriate to assess the perceptions of SBEs on the determinants of ECs' performance. Relying on the executive's experience is appropriate because the content of enquiry is such that complete information cannot be expected from representative survey respondents. Business executives who have succeeded (or failed) speak of their attitudes and behaviours time and again. They provide many factual incidents that could be used as a basis for planning research on small contractors' success (Gremler, 2004).

## **2.5 THE DETERMINANTS OF ECS' PERFORMANCE**

In this section, the perceived factors that determine the performance of ECs are examined. Although there is an abundance of literature examining EC performance in South Africa construction industry (e.g., Gasa, 2012; Greyling, 2012; Ladzani, *et al.* 2012; Baloyi and Bekker, 2011; Emuze, 2011; Dlungwana, Kandie and Ngassam, 2009; Thwala and Mvubu, 2009) there is no study that has looked at perceptions of SBEs on the determinants of ECs'

performance specifically registered with CIDB in Grade 2. Hence, there is no common understanding on the performance factors of these contractors. Based on the survey of literature, a combination of performance determinants for this study has been classified as follows:

### **2.5.1 Financial factors**

Access to finance has been cited frequently in literature as a critical constraint for small construction business performance (e.g., Ali et al, 2010; Boyeens 2011; Nurbani, et al. 2011; Otim *et al.*, 2011). Funding and guarantees are not easily available from South Africa banks (Booyens 2011 ), and as Thwala and Mvubu, (2009) claim, lack of access to finance both during pre-construction disqualifies ECs from meeting guarantee and performance bond requirements, and during construction leads to cash flow problems, incomplete work and liquidation. Banks are reluctant to deal with ECs unless exorbitant interest rates are paid and through compulsory business management services (Thwala and Mvubu, 2009).

Small businesses do not have a record of accomplishment or any form of guarantee (Ligthelm, 2011; Olawale and Garwe, 2010; CIDB 2010) and ECs are no exception. This is supported by a study by the FinMark Trust (2006) in South Africa, which found only 2% of ECs were able to access bank loans. Foxcroft, *et al.* (2002) confirmed that 75% of applications for bank credit by new ECs in South Africa were rejected, which suggests ECs face collateral discrimination from financial institutions, and without finance ECs may not survive or grow (Olawale and Garwe, 2010).

The CIDB (2013) shows 30% of the respondents cited the inadequacy of business's access to credit as a financial constraint to performance. However, a study of the construction industry conducted by the Bureau for Economic Research at the University of Stellenbosch (2012) found that the percentage of respondents reporting inadequate access to credit as a constraint to their success had declined moderately from 34% to 32% in 2012.

The effects of credit on enterprise performance, including ECs, are contradictory and remains unclear (Okpara and Wynn, 2007; Masakure, *et al.* 2009). Despite the theoretical case for access to finance as a barrier to business performance, and many survey's

respondents reporting access to finance as a constraint, there are mixed reports in literature. Additional capital may not be necessary and may be overcome through creativity and initiative. Kallon (1990) supports the view, confirming that the amount of capital needed to start a business is significantly negative when related to the rate of growth for the business, concluding that access to commercial credit did not contribute to small business performance in any way, and if it did the relationship would be negative.

Credit can negatively affect small business profitability and survival if businesses are captive borrowers or operate under poor economic conditions and high interest rates (Masakure, *et al.* 2009; Atieno, 2006). Similarly, Estrin and Mickiewicz (2010:5-6) doubt whether financial constraints are binding on start-ups, and regard it as more important in expansion of existing businesses than in the creation of new ones. Start-up requirements are relatively small in developing countries (Lingelbach, *et al.* 2005:3-5) and informal sources of funding (such as own savings and family sources) have been identified as important in the literature. Formal bank finance for start-ups seems to be largely limited to low-risk cases and where collateral is provided (Naude, *et al.* 2008). The discussion suggests that formal credit has no clear impact on ECs' performance relative to cheaper informal credit (Akoten, *et al.* 2006). Therefore, if credit is accessible and reasonably priced, businesses can address their liquidity constraints, in turn aiding profitability (Babajide and Joseph, 2011).

#### ***2.5.1.1 Cash flow management***

Cash flow management is one critical issue linked to ECs' performance as it creates inadequate cash situation for the business. Poor cash flow management results in inadequate working capital and undermines the sustainability of the construction business. If there is lack of cash to support a business's day-to-day activities this could lead to contractors' failure. According to Greyling (2012), weak financial and cash flow management have been observed amongst ECs, affecting business ability to work successfully. Poor cash flow management has been cited in other studies as one of the major causes of failure in small businesses (Greyling, 2012). There is an agreement with Truong-Van Luu (2008), whose study of the construction industry in Vietnam found better management of receivable accounts and careful evaluation of the financial capacity of

owners were meaningful factors for measuring strategic performance. This indicates the importance of developing a cash flow forecast that indicates the estimated money flowing into and out of the business over a period of time.

#### **2.5.1.2 Cost management**

Financial and accounting skills help the contractor to make sound economic and financial decisions that result in better project outcomes, including best use of financial and tax advantages. However, there is a misperception in general that a contractor does not need such skills as accountants and financial advisers could do the job, helping the contractors make the best financial and commercial decisions (Chaplin, 2010). However, a study conducted by Coolidge and Ilic (2009) in South Africa indicate that professional bookkeepers or accountants are too expensive to hire, which indicates that contractors need to acquire the basic skills and knowledge to guide them in financial and commercial decisions and initiatives (Mbachu 2012).

Kaming, *et al.* (1997) studied the factors influencing construction time and cost overruns on high rise projects in Indonesia and found that cost overruns were mainly caused by inaccuracy of material take-off, increase in material costs and cost increase due to environmental restrictions. In Ghana, Frimpong, *et al.* (2003) found that the most important cost and time delay factors for the contractors were late monthly payments from clients, while in Nigeria, Dlakwa and Culpin (1990) found that cost overruns were a result of fluctuations in material, labour and plant cost, construction delays and inadequate pre-planning.

#### **2.5.1.3 Security of payment**

According to literature, payment problems experienced by ECs are a result of rework relative to the faults in project design errors, formwork errors; service errors, mechanical work faults, electrical works faults, finishing works faults, and insufficient documentation prohibitive to ECs profitability and growth (Emuze, 2011). During construction, contractors often engage in rework due to unacceptable quality (Alinaitwe, 2008), which would lead to late payments. The costs associated with rework are as high as 12% of the

total project costs and require as much as 11% of the total project working hours (Love, *et al.* 1999). Late payment of completed work, however, results in contractors halting work unless payment for completed work had been processed after the agreed date (Baloyi and Bekker, 2011).

In South Africa, the enormous scale of the payment problem was documented by a series of media stories during early 2009. As a result, recent requirements from the SA National Treasury were for all government departments to make payment to suppliers within 30 days of the receipt of all correct documentation. The Gauteng Provincial Government (GPG) policy incorporates this 30-day provision and further stipulates shorter payment timeframes for ECs (Marx, 2012). When clients delay or withhold payments this improves their own financial position, while that of the ECs and project performance are affected. The issue of ECs suffering from payment delays is common to many countries (UK- Odeyinka and Kaka, 2005; China – Wu, *et al.* 2011; Australia – Carmichael and Balatbat, 2010). However, Australia, New Zealand, Singapore and the UK have introduced legislation to protect the rights of subcontractors and suppliers to receive payments, irrespective of whether the main contractor has been paid (CIDB, 2013; MBSA Annual Report 2013). In the USA a regulation requires general contractors to pay subcontractors after completion of the project, even if they have not been paid by their clients (Touran, *et al.* 2004). Such legislation allows subcontractors and suppliers to claim interest on late payments, suspend work, claim a right of lien and render invalid any pay if paid clauses are in construction contracts (CIDB, 2013, Ofori 2009).

#### **2.5.1.4 Performance guarantee**

Performance guarantees are issued by financial institutions such as a bank, and provide for payment of money by the financial institution to the employer should the contractor fail to complete the contract, for example, if in breach of contract, the contract is cancelled or the contractor becomes bankrupt. Most construction work contracts require performance guarantees that pay the employer in such cases (CIDB 2013). A performance guarantee is a method of protecting the employer from the risks of overpayment, defective work and contractor insolvency, and as an incentive for contractor performance. In other cases, employers retain a percentage of each progress payment to contractors who in turn

withhold a similar amount from subcontractors until certified completion of the project. The retention amount typically ranges from 5% to 10% of the value of the work done (CIDB 2013).

#### ***2.5.1.5 Tender pricing and competition***

The high competition in the Gauteng construction industry results in many contractors pricing tenders low to win work then seeking ways to make profits from continuing projects by squeezing subcontractors and employees to the lowest possible bid price (CIDB, 2012; Ofori, 2009). As a result of intensive tendering competition during year 2010, profit margins remained under pressure and a net 67% of surveyed respondents indicated that the growth in the profitability of their businesses worsened during that year (CIDB, 2010). The low margins resulted in poor quality work, delays, disputes and losses on projects. CIDB (2011) state that between 2007 and 2009, more than 1,400 construction enterprises failed because of increased competition in contracting business, resulting in lower profit margins and poorer quality (CIDB 2013).

#### ***2.5.1.6 Record keeping***

Poor record keeping has been cited in literature as an obstacle to ECs' performance, often a result of lack of basic business management skills (Thwala and Phaladi, 2009). Where a business has poor record keeping the business loses track of its daily transactions and cannot account for its expenses or profits at the end of the trading period. On the other hand, good recordkeeping provides a business with accurate information on which to base decisions, for example projecting sales and purchases and determining break even points. In many cases, poor record keeping has led to the closure of some ECs, thereby making it a significant issue for small business performance. ECs tend to rely on hired accountants, legislative and regulatory non-compliance with deadlines and submissions (VAT) and poor financial planning (ABC). The effect is that the SBEs remain uninformed on financial position of the business, hence problems with VAT collection and tax, poor performance, penalties compromised UIF, PAYE, Skills Development Levy, and RSC not being paid, resulting in business closure.

### ***2.5.1.7 The case of Hong Kong***

Most of the Hong Kong EC businesses lack the resources and financial capacity to compete with the main Chinese contractors, who have stronger organisational resources and often government backing. There is no intervention and minimal assistance or protection measures by the government, which is not proactively offering direct support to domestic contractors. As a result, indigenous industry stakeholders have pleaded for government's leadership and assistance for ECs (Baldwin and Chack-Fan 2008). The reasoning behind this is that if the small contractors could gain direct support from the government that would revive the local industry. Without government support, small contractors would have to try harder to survive in the industry (Baldwin and Chack-Fan, 2008).

## **2.5.2 Manpower factors**

The key factors that have been widely reported in literature having an impact on the performance of ECs include shortages of skills and knowledge among construction workers, lack of training in the industry, low productivity and poor team relationships.

### ***2.5.2.1 Skills and knowledge availability***

Egbu (1999) submits that there is a distinction between skills and knowledge, with skills being the practical ability or competencies a worker gains from applying the knowledge over time in a hands-on work setting (Egbu, 1999). On the other hand, Mbachu (2012) noted that knowledge consists of the ideas, wisdom and information workers acquire through experience, theory and practice, the acquisition of which gives them an ability to understand. Accordingly, a skills shortage could relate to contractors' experience and supervision which have a great impact on project delivery (Mbachu, 2012; Otim, *et al.* 2011). Experience can be a source of sustainable competitive advantage and lead to better performance for the business. According to Mbachu (2012), though emphasis is on the skills and knowledge that ensure successful project delivery, such skills and knowledge could enable the contractor run a successful business, remain competitive and achieve

sustained growth. There is a shortage of the demanded skills in the construction industry, not only at artisan but also at specialised levels (van Wyk, *et al.* 2011).

The most important skills required in construction business include technical competency to ensure quality and effectiveness of project delivery (Eom, *et al.* 2008). However, Chaplin (2010) argues that the most technically qualified contractors do not necessarily win the most work, excel in project delivery or run successful businesses. ECs need a balanced range of competencies that include marketing, sales, negotiation and business skills. Negotiation skills are important because contracts have terms and conditions that could pose risks and cash flow problems to the contractor's overall ability to deliver a project successfully and profitably (Mbachu, 2012). According to Chaplin (2010), negotiation skills enable the contractor to achieve favourable bargains that reduce risks and imminent cash flow problems on a project. Through negotiations, a contractor could avoid conflicts and disputes which are costly and time-consuming, adjudications, arbitrations and litigations (Mbachu, 2012).

ECs require skilled and stable labour force to sustain growth (Atkinson, *et al.* 2012). Relevant skills ensure that contractors are able to meet clients' expectations, whilst improving the quality of work and opportunity to win more contracts (CIDB, 2009). In South Africa it is difficult and expensive to hire skilled labour (Mahadea, 2008), with labour only able to be hired at a cost and within the confines of the labour regulations, such as employment and minimum wage regulations. There is a mismatch between skills supplied through the higher education system and those required by the construction industry (Amaratunga, *et al.* 2011:37), consequently, the demands on human capital, in terms of education, training and experience, act as barriers to EC performance.

In South Africa, contractors having a CIDB contractor grading designation of 5 or higher only engage supervisory and management staff in labour-intensive works that have completed the skills programme. However, contractors having a CIDB contractor grading designation of 1 to 4 have personally completed the skills programme for the NQF level 2 unit standards. All other site supervisory staff in the employ of ECs must have completed the skills programme for the NQF level unit standard.

### ***2.5.2.2 Construction education and training authority (CETA)***

The Construction Education and Training Authority (CETA) was established in terms of the Skills Development Act (No. 97 of 1998), the functions and objectives of which include determining the education and training needs of the construction industry within the framework of the National Skills Development Strategy. It achieves these primarily through the development and maintenance of Industry Skills Plan with the active participation of all industry stakeholders. It influences the course of training and skills development by ensuring that all training reflects current sectorial needs and requirements of the construction sector. Thus, the Department of Public Works, the CIDB and CETA have very important roles to play in creating an enabling environment for reconstruction, growth and development in the construction industry (van Wyk, *et al.* 2011). However, CETA does not carry out training but rather accredits and monitors training provided by private accredited training providers.

### ***2.5.2.3 Competency assessment scheme***

The objective of Competency Assessment is to enable contractors in Grades 1 to 5 to seek recognition for their skills and prove a measure of assurance to clients that they can successfully undertake their work (CIDB, 2009). Competency assessments are an important tool to encourage businesses to have the diversity of skills that are required to succeed, whether technical, entrepreneurial or managerial (CIDB, 2009). The board proposed minimal competency levels, starting with some basic required skills for contractors, which with competency would reflect on the CIDB Register of contractors as a resource to clients. Contractors registered in Grades 7 and upwards are required by the Register of Contractors to have a certain number and types of professionals in their employment to ensure competency and quality. This requirement does not exist in the lower Grades, 5 to 1 (CIDB, 2012).

### ***2.5.2.4 Labour productivity***

Labour productivity enables a business to be competitive, achieve set goals, meet stakeholder value propositions and maintain strategic and financial health (Mbachu and

Durdyev, 2011). In South Africa, labour productivity has been disappointing and is limiting the ECs ability to optimal performance. A study by van Wyk (2011) argues that productivity is low because skills are not developed in the construction industry, nor employment conditions that show respect for people applied (Atkinson, *et al.* 2012). The employment of casual labour has become the norm in the industry, along with reduced wages, working conditions, remuneration, formal skills development or training and poor quality of life. However, the establishment of the CIDB, CETA, BBBEE, Preferential Procurement Policy Framework and other bodies may bring changes to the construction industry.

One aspect that emerged from the Egan Report was the ‘People Performance Indicators’ (PPI), developed by the Rethinking Construction’s Respect for People Working Group as a direct response to the realisation that to achieve the targets set out in the Egan Report, improvements were required in how the industry treated its people. These indicators could be considered leading ones and cover employee satisfaction, staff turnover, sickness absence, safety, investors in people, working hours, pay, training, diversity and travelling time (Beatham *et al.*, 2004). These can be used to benchmark ECs’ performance within the construction industry and across different industries.

A study by Enshassis, *et al.* (2007) in the Gaza Strip indicated five important factors that impact negatively on labour productivity as material shortages, lack of experience of labour, lack of labour surveillance and alteration of drawings or specification during execution. This agrees with Ameh and Odusami (2002), who identified low wages, lack of materials and unfriendly working atmosphere as having a major impact on productivity in Nigeria. Yates and Guhathakurta (1993) looked at international labour productivity differences and concluded that labour quality, motivation and management were the main issues. Labour quality, for example, may include union agreements, restrictive work practises, absenteeism, turnover, delays, availability, level of skilled artisans, use of equipment and weather (Langston, 2012). Using quantitative analysis, Ahadzie, *et al.* (2011) reported evidence of low morale and motivation of craftsmen, poor planning and supervision as some of the important factors that affect construction performance in Ghana. Disruption is also correlated with poor management and leads to low productivity (Enshassi, *et al.* 2007).

#### **2.5.2.5 Project team relationship**

The construction industry involves team relationships that form and disband on a regular basis (Langston, 2012). A project team is a group whose members are concerned primarily with using the parent business's resources to create its result (Greenberg and Baron, 2000). In a large project, with group dynamics and organisation learning, project teams often get stuck in defensive routines that inhibit effective learning and remain so unless these dysfunctional behaviours are changed (Pheng and Chuan, 2006). For this reason, successful project completion depends to a large extent upon members being able to work together effectively as a project team. When group dysfunctional behaviours prevail, schedules slip, costs overrun, output quality diminishes, and in extreme cases the projects fail (Pheng and Chuan, 2006).

Hanson, *et al.* (2003) examined causes of client dissatisfaction in South Africa construction industry and found that conflict, poor workmanship and incompetence of contractors were among the factors which negatively impact on project performance. A study by Larson (1992) indicates that adversarial relationships between clients and contractors create a climate that puts success of the ECs at risk. Once adversarial relations exist between the main contractors and subcontractors this undermines onsite productivity and ultimately jeopardises the realisation of project objectives (Mbachu and Nkado, 2007; Dlungwana, *et al.* 2002). If primary stakeholders do not work together effectively as a project team the profitability and growth of ECs are affected.

#### **2.5.3 Materials, equipment and machinery factors**

A study by CIDB (2012) confirmed critical shortages and quality of materials in the construction industry as a major factor in cost overruns. Marshalling tools, materials, plant and equipment is a necessary operation that occupies a large amount of productive working time, very broadly of the order of one third or more. Material management factors have a significant impact on labour productivity and construction efficiency, and worker time can be rendered idle or non-productive due to a lack of materials and tools at the right time (Pheng and Chuan, 2006). In many cases, materials are not stored close enough to the work area, leading to double handling.

Availability and reliability of materials and machinery affect the project at each stage of construction in terms of time and cost overrun (Sambasivan and Soon, 2007). The three most important resources for any construction project are manpower, materials and machines (Enshassi, *et al.* 2009), so contractors need to ensure all these resources are available throughout the project, whenever needed. Excessive waste of material during the application process (e.g., unnecessarily thick plastering) should be avoided as this translates into high production costs that hinder the profitability and growth of ECs.

ECs do not have good relationships with suppliers (Thwala and Mvubu, 2009). In a functioning relationship, the material supplier provides credit to the contractor (30-90 day term) and the contractor would pay on time. However in South Africa, ECs are required by suppliers to pay cash upfront before taking delivery of the material. This kind of relationship exists because ECs often fail to pay on time due to capacity or performance constraints. Suppliers are reluctant to extend credit facility to ECs because of perceived risks, for example:

- Poor history of ECs' failure to complete projects.
- Systematic contractor payment processing delays, especially for construction works commissioned by the public sector.
- The potential for material losses due to theft, lack of appropriate storage and mismanagement by ECs.

In the US, construction members formed a partnership or strategic alliance so as to share each other's resources, such that productivity could be improved and an adversarial construction environment avoided (Yates and Guhathakurta, 1993). ECs formed direct partnerships with financial institutions in order to face the competition from builders of large houses with a strong financial background (Baldwin, *et al.* 2008).

### ***2.5.3.1 Waste of material in construction***

Rework is a quality failure attribute that contributes to waste and value losses in building design and construction. Waste of material can be attributed to variation of order which results in rework, wastages, defects, claims and disputes. Substantial waste in public

building construction is believed to be widespread and manifests in part through rework (Oyewobi *et al.*, 2011, Schraven, *et al.* 2011). It occurs during the operation and maintenance stages and is undertaken by clients or end users following handover of the facility at the expiry of the defects liability period (Alinaitwe, *et al.* 2013).

#### **2.5.4 Project implementation**

A review of literature indicates that project delay is a determinant of ECs' performance (Kikwasi, 2012; Lo, Fung and Tung, 2006; Pickavance, 2005). The demand of construction clients for the timely delivery of construction projects and the susceptibility of projects delays and cost overruns has attracted the attention of researchers around the world to try and identify the immediate root cause of project delay (Akinsiku and Akinsulire, 2012). According to Faridi and El-Sayegh's (2006) research, project delays in the United Arab Emirates were caused by preparation and approval of drawings, inadequate early planning of the project and slowness of owner's decision making processes. In Saudi Arabia, Assaf and Al-Hejji (2006) discovered that only 30% of construction projects were completed within the scheduled completion dates and the average time overrun was between 10% and 30%.

All the parties involved in a construction project are responsible for their respective roles at different stages, from the conceptual to the finish (Akinsiku and Akinsulire, 2012; Lam and Wong 2009; Faridi and El-Sayegh, 2006). Delay takes place at a particular period especially in the completion of an activity or project (Akinsiku and Akinsulire, 2012; Faridi and El-Sayegh, 2006), and in order to minimise delays it is important to know the causes.

In spite of efforts exerted on ECs' performance in SA, many suffer from time delays and cost overruns as well as dissatisfied clients (CIDB, 2012), hence ECs are criticised for poor performance and ineffective delivery of desired goals (Mbachu and Nkado, 2007; CIDB, 2012). The constraints and challenges that lead to such performance are attributed to the complex and unique nature of projects awarded to ECs (Thwala and Phaladi, 2009). Such projects are dynamic, iterative and involve continuous change throughout development and execution (Haponava and Al-Jibouri, 2010). The effects of project delay include loss of revenue due to slackened production and rentable space (Mukuka,

Aigbavboa and Thwala, 2013). To a consultant, delay means either the failure of progress monitoring of contractors or faulty design, or both, and to a contractor it leads to penalties and higher overhead costs (Faridi and El-Sayegh, 2006).

An examination of literature has shown major types of delay (Akinsiku and Akinsulire, 2012; Ali, *et al.* 2010; Ameh and Osegbo, 2011; Faridi and El-Sayegh 2006), namely: the client's responsible delay; contractors' responsible delay, the consultants' responsible delay and the causes within the national or local government regulations. Any of these can delay a construction project if not incorporated in the project planning, scheduling and controlling programme. The delays from either category have been summed up by (Faridi and El-Sayegy, 2006) to include availability of resources, manpower, materials and machinery, as well as supervision and experience.

#### ***2.5.4.1 Delays within contractor's category***

The contractor makes decisions regarding resources, general management and administrative set-up of the project and is in a position to make the project a success (Otim, *et al.* 2011). Contractors execute most of the construction works and most aggravating delays are caused by their poor performance (Chitkara, 2004). A survey by Marx (2013) in South Africa indicates that employers caused delays at 20% of projects while public corporations were responsible for delays in 18% of the projects. These were related to planning issues such as budget restraints, final approvals and registration of property in the employer's name. This is in line with Akinsiku and Akinsulire (2012), Otim, *et al.* (2011), Sambasivan and Soon (2007), who concluded that contractors' responsible delays are caused by inability to proceed with the project diligently and efficiently as a result of shortage of labour, failure to identify critical activities, unplanned increase in the scope of work from the client, ignorance of appropriate planning techniques and lack of understanding of operating procedures. Sambasivan and Soon, (2007) concur that delays within this category relate to contractors' poor site management and supervision, operational problems by subcontractors, errors and omissions during construction stages and inadequate contractor experience.

#### **2.5.4.2 Delays within consultants' category**

These delays are related to contract management, preparation and approval of drawings, quality assurance and waiting time for approval of test and inspection (Sambasivan and Soon, 2007; Faridi and El-Sayegh, 2006). Owing to the nature of a construction project, in South Africa, many changes in drawings, specifications and materials are experienced. A change or variation to the drawings is given in a written instruction by the architect requiring the contractor to alter the works in any of the instructed situations (Oladapo, 2007), and site instructions must be issued should there be any variation in the drawings. However, Ssegawa, *et al.* (2002) argue that all the project participants cause variations as they respond to changes in the financial, aesthetic, statutory and technological requirements, meteorological, geological, geotechnical and other conditions. In the Nigerian construction industry, common causes of variations have been identified as change in specifications and scope, errors and omissions in contract documents, discrepancies in contract documents, changes in government policies and legislation, and natural occurrence (Oladapo, 2007). Thus, when changes occur, whoever initiates them should be held responsible, otherwise this would reflect in the performance of contractors.

Incomplete and unclear design documents lead to mistakes in execution and inevitably cause delays due to misunderstanding of the designs by the contractor (Sunday 2010; Otim, *et al.* 2011). It is unusual to complete a project without experiencing changes to the plans or the construction process itself (Sunday, 2010; Oladapo, 2007; Ssegawa, *et al.* 2002), and as Oladapo (2007) concurs, there would be changes to the scope, time, cost and/or quality on most, if not all, construction projects. Thus, if teams involved in a project do not gather sufficient data, or use competent personnel with knowledge and experience to ensure complete designs, this would impact on the growth and profitability of construction contractors.

#### **2.5.4.3 Delays within the client's involvement**

The owner's involvement in the construction project varies significantly, depending on the project and contract type (Faridi and El-Sayegh, 2006). The client's responsible delay relates to those that result in variation and failure to provide site information. Otim, *et al.* (2011) indicates that the client's first task should be to analyse and collect all the relevant

information available in order to give the designer the clearest and broadest picture of the requirements. Failure to provide appropriate information by the client would cause delays and prevent contractors from starting on site after they have provided guarantees.

Other delays that emanate from the client are founded in the extension to time and escalation of costs due to inflation, delay in the payment of interim certificates and completed work, owner interference, changed orders and mistakes or discrepancies in contract documents, inability of the client or representative to make quick decisions, late handing over of site, delays in the supply of materials and inadequate planning and unrealistic contract duration imposed by owner (Akinsiku and Akinsulire, 2012; Sambasivan and Soon, 2007; Faridi and El-Sayegh, 2006).

#### ***2.5.4.4 Delays within local government regulations***

The planning and scheduling of any construction project depends heavily on the local government regulations (Faridi and El-Sayegh, 2006). On many occasions contractors, consultants and owners need to study various services (underground / overground), such as telecommunication cables, water / electricity / gas lines and others before they start the construction (Faridi and El-Sayegh, 2006), depending on the location of the project. Local governments issue permits and give approval in most cases, therefore, all construction participants must be aware of these regulations and estimate the requirement of time and effort required.

Apart from local authority regulations, there are important macro-level political and economic factors that have been associated with poor performance of ECs. As a result of legal requirement in South Africa, construction clients require contractors to meet environmental management issues, which put significant pressure on ECs (Greyling, 2012). For example, *Eskom* and *Transnet* have very stringent environmental management requirements, because they are held responsible and rather than risk penalties the main contractors pass on their skills and systems to subcontractors. Main contractors subsequently take an active role in implementing environmental management practices and ensuring that subcontractors have the necessary skills to implement such practices. The ECs that fail to adapt and respond to the complexity of the new environment in South Africa tend to experience survival problems (Mbachu, 2008).

#### ***2.5.4.5 Effects of project delays***

Construction delays occur either as a liability on part of the client and team or on part of the contractor and team, that is, the causes of force majeure and social political issues through changes in bye-laws and statutes (Akinsiku and Akinsulire, 2012). The delays can be translated into the performance of the construction business, particularly time and cost overruns as well as litigation and project abandonment (Mbachu, 2008). According to Haseebet, *et al.* (2011) they may lead to disputes, lawsuits, total desertion, litigation and project abandonment, whilst Aibinu and Jagboro (2002) identified time overrun, cost overrun, dispute, arbitration, total abandonment and litigation as the effects of delays. However, Li, Love and Dawe (2000) argue that when delay occurs a project manager may be confronted with additional costs, a decline in quality and rework, because he or she often prescribes overtime work and/or injects additional resources in order to meet the project's schedule. While doing so, this could significantly increase project costs, prolong overtime work and so cause declines in productivity and performance, thus generating rework.

The impact of variations in South Africa has been observed by many authors and includes lost labour productivity by the contractor, extension of the project duration and material wastage on site (Motete, *et al.* 2003), frequent claims, increase in project cost (overruns), increase in overheads expenses, quality degradation, rework and demolitions, completion schedule delays, damage to contractor's reputation, delays in payments and disputes over construction contracts. A study by Greyling (2012) in Free State found that 50% of construction projects failed to complete work as required because contractors had failed to complete works within the contract period or extension. Work is stopped, abandoned or suspended before completion. Contractors fail to comply with contractual provisions and conditions (Greyling, 2012).

In Nigeria, Ayininuola and Olalusi (2004) confirmed that variation of works by building owners is one of the major causes of the high incidence of building failures and this translates into the performance of the contracting company. This confirms Hanna, *et al.*'s (2002) study on project variation that found as inevitable the changes arising from variation which impact on a project and may lead to disruptions and changes in work conditions, and in turn loss of productivity.

Sunday (2010) studied the impact of variation orders on public construction projects in the Seychelles construction industry and found the effect to be increase in project cost, delay in payment, hiring new professionals to take care of complex technological projects, increase in overhead expenses, quality degradation, logistics delays, productivity degradation, interruption, delays and redirection of work associated with variation orders that have a negative impact on labour productivity, procurement delays, rework and demolition, damage to business's reputation, poor safety conditions, poor professional relations and completion schedule delay.

Similarly, Faridi and El-Sayegh (2006) studied project delays in the United Arab Emirates and found that preparation and approval of drawings, inadequate early planning of the project and slowness of owner's decision making processes were the main causes of construction delays in that country. However, shortages, skills and the productivity of manpower also played a vital role in construction delays. Other major causes of concern from the contractors' point of view included conflict between contractors and consultants. Also, lack of communication and coordination between the parties involved in construction (contractor – subcontractor-consultant-client) had an effect.

Another study, by Baloyi and Bekker (2011), focusing on the causes of construction cost and time overruns in South Africa, found that the increase in material cost was the single largest contributor to cost overruns for both global and stadia projects. With respect to time delays, the study indicated that the most significant contributory factor in global projects was late delay in payments, while for stadia projects it was design. A study by Sambasivan and Soon (2007) categorised their findings as poor site management, inadequate contractor experience and poor subcontractors, whilst Frimpong, *et al.* (2003) found that financing, natural conditions and materials-related factors contributed mainly to the delay of groundwater projects in Ghana.

The examples given in this section demonstrate that there are many factors with the potential to affect the different dimensions of project delays. While the effects of construction delay were drawn from different countries whose local conditions and prevailing problems differ from South Africa, this demonstrates that construction delay is one of the most recurring problems in the construction industry and has adverse impact on project success in terms of time, cost, quality and safety. The effects of delays influence

the overall performance of ECs, therefore, it is essential to define the most significant causes of delay in order to avoid or minimise their impact on ECs performance.

#### ***2.5.4.6 Construction business management and supervision***

Management and administration efficiency of the construction delivery process requires a high level of management knowledge, expertise and experience (Atkinson, *et al.* 2012). According to Bertelsen and Koskela (2002), there are three main parts that require management of the construction process, the first being *contract management*, which is an essential part of managing the construction processes with its main objective being managing the contractual arrangements as well as claims and penalties (Haponava and AL-Jibouri, 2010). The second, *process management*, has as its main objective a predictable production flow with high efficiency. There is need to establish good cooperation between the parties working together on a construction project and between the site workers. The third, *value management*, aims to ensure that the construction process generates the value desired by the client, which needs to be established with and communicated to the owner or client, users and other stakeholders (Bertelsen and Koskela, 2002). Communication can be characterised by how well information is exchanged among the stakeholders (Makui, *et al.* 2011; Diallo and Thuillier, 2005). All aspects of the information exchange must be taken into account in order to facilitate the necessary circulation of information. Lack of information in overlapping construction activities may result in reworking, high costs and low process performance, hence, the overall management of information can be a key factor in preventing many problems and improving process performance during the construction project.

#### ***2.5.4.7 Innovation and learning factors***

Project implementation requires innovation that would ensure continuous improvement within the organisation, leading to improvement of working conditions, lowering construction costs and decreasing construction time. However, a study by Cattell (1999) in South Africa showed that innovation can either be encouraged or hindered by regulations in the industry, such as the SA Bureau of Standards (SABS) and the National Home Builders Registration Council through their roles:

- Ensuring that buildings and products meet minimum safety standards through the National Building Regulations;
- Setting standards for public good such as those related to indoor air quality and the environment,
- Setting standards related to building performance, such as utility, quality, long-term durability of costs and protection of assets

Innovation is enhanced through product assessment and certification, which is a mechanism designed to encourage market acceptance and use of innovative technologies. SABS deals with standards and codes of practice which relate to conventional products while Agreement SA assesses innovative, non-standardised building materials, products and systems. Facilitating the acceptance and use of innovative technologies through product assessment and certification are closely linked to the regulatory environment. All building in SA must comply with the National Building Regulations (NBRs). Application for building plan approval of must be made to the local authority which then applies the NBRs when considering such applications. Although the regulatory process sets minimum standards, in practice, few builders and contractors construct buildings to more than the minimum required, in which case the regulations can be seen as hindering the introduction of innovation and promoting new technologies (Cattell, 1999). Therefore, successful innovation is a complex task for an EC that does not have the means and knowhow to invest in R and D activities (Avermaete, *et al.* 2003) or cannot always convert research and development into effective innovation.

### **2.5.5 Quality factors**

Lack of quality in construction is manifested in poor or non-sustainable workmanship and unsafe structures or delays, cost overruns and disputes in construction contracts (CIDB 2011). As a result, the preference of giving ECs in the award of contracts has become a subject of concern and controversy to the South African public in general. The concerns and controversy are based on public perception of the quality of work produced by ECs. There are negative reports that most of the infrastructure contracts awarded to ECs were abandoned and the frequent incidences of collapsed Reconstruction and Development

Program (RDP) houses have cast serious doubt on the ability and integrity of ECs. This view is supported by Brandon (2014), who noted complaints about ECs in general and personal accounts of unhappy relations with EC as too common. Clients of many types often recount stories of how their various building projects have been fraught with difficulty and have ultimately caused financial and emotional hardship. Brandon further states that within one industry the standards to which various participants operate are extremely varied. On one hand, there are sustainable and successful enterprise, regardless of the magnitude of projects undertaken which are skilled, professional and conduct themselves in such a manner that leads to satisfaction on the part of clients and agents alike. On the other hand, there are innumerable unscrupulous, unskilled and opportunistic operators whose conduct is unacceptable (Brandon, 2014). This shows the state of EC performance level in the industry as perceived by the public.

Although reports of poor quality appear dominant in the low-cost public housing sector, poor quality is regularly observed in the private residential housing sector. The dissatisfaction with quality in the low-income residential housing sector has been widely publicised, as illustrated by the following reports and investigations into subsidy of housing in the public sector (adapted from CIDB, 2011):

- Investigations and audits by the Department of Human Settlements have shown that it would cost SA R1.3 billion or 10% of its 2009 / 10 year's budget to rectify badly built Reconstruction and Development Programme (RDP) houses,
- An NHBRC forensic investigation estimated the rectification costs to be around R400 million to reinstate structural integrity and with NHBRC minimum technical requirements and the NBRs on around 41,000 houses investigated,
- A report by the Department of Housing of the Province of the Eastern Cape noted that of around 20,000 houses assessed, the rectification costs were put at around R360 million,

According to FIDIC, failure to achieve appropriate quality of construction is a problem worldwide. Ironically, quality is an important feature of construction because the safety of every structure and more importantly the satisfaction of stakeholders with the structure depend on its quality (Idoro, 2010). As a result, when main contractors solicit for

quotations they consider the subcontractors' performance based on previous work, financial stability and level of experience, processes for ensuring quality and safety, health and safety record and even BEE credentials (Greyling, 2012; CIDB 2013).

A study by Zau (2006) in the Chinese construction industry found that quality was negatively affected by corruption, some forms of which were traced to consultants, clients, government officers' administrative interference, illegal award of contract or subcontracts, disclosure of project baseline prices prior to tendering and demand for bribes in cash or kind from contractors. Within the contractors' category, corruption was traced to offering bribes in cash or kind, collusion in tendering prices among contractors, use of substandard materials or workmanship and non-compliance with contracts. These activities negatively affected quality in construction works in that country. This confirms media reports in South Africa of incidences of collapse of buildings and shopping malls as a persistent major problem to the government, professional bodies, clients, contractors and subcontractors.

Based on the importance of quality, various quality performance initiatives have been considered by both clients and contractors, for example, balanced scorecard, business excellence model, ISO9000, ISO 14000, OHSAS18001, six sigma, and total quality management systems (TQMs). Haupt and Whiteman (2003) perceive TQM as an important tool on how quality can be improved in construction, whilst ISO9000 certifications related to construction are popular in several countries such as Hong Kong, and the application of ISO9000 based Quality Management Systems (QMS) in the construction industry has been studied by several researchers (Palaneeswaran, *et al.* 2006; Dissanayaka, *et al.* 2001). A study by Love and LI (2000) of the problems associated with quality certification in Australia, by Riberio and Curado (2000) of how ISO9000 standards are being used by construction companies in Portugal, and by Ofori (2009) of ISO9000 certification in Singapore construction enterprises, the costs, disclosed benefits and role in the development of the industry. Using quantitative analysis, Ahadzie, *et al.* (2011) reported evidence of design changes and/or variations, poor planning, supervision and low mechanisation as some of the important factors that could be affecting construction performance in Ghana. These studies confirmed that quality standards are essential to improving quality in construction.

Poor quality is not unique to South Africa as similar trends are observed in many developed and newly industrialised countries. Mbachu and Nkando (2007) found that quality and attitude to service were key factors constraining successful project delivery in South Africa. Similarly, Zulu and Chileshe (2008) found that the performance of contractors in Zambia was below expectation, resulting in incomplete or significantly delayed projects. The poor performance by contractors may have implications for business competitiveness in that country as the construction industry is driven mainly by projects, the success of which is linked to companies (Barry and Sebone, 2009). It follows that if ECs consistently deliver poor quality on projects they may fail and this in turn may lead to the low success rate of ECs (Adendorff, Appels and Botha, 2011). Poor quality is costly to the client in terms of waste and value losses in building design, as supported by Hwang, *et al.* (2009), who found that an estimated \$US75 billion was wasted as a result of construction related rework in the USA, and Love, *et al.* (1999) and Kazaz, *et al.* (2005), who estimated the magnitude as ranging from 2 to 25% of construction contract value.

#### **2.5.5.1 China**

The majority of contractors in China are led into ISO9000 based quality management systems mainly by clients who initiated mandatory requirements for contractor selection by the Hong Kong Housing Authority and the Works Departments Bureau. This is a similar board to the SA Master Builders Association (MBA) and CIDB in South Africa. The Hong Kong Housing Authority uses the performance assessment scoring system (PASS), introduced in 1990 as an objective means to measure contractors' performance against a set of defined standards and to provide a consistent means for comparing the performance of individual contractors on individual projects (Favie, 2010:29). The measures include end product quality such as structural work, architectural work and process quality including safety, environment and other obligations, management input assessment, programme and progress assessment, maintenance period assessment. The system serves as the major vehicle to drive continuous improvements performance achievement in the long run (Fung, 2006:8.7). By doing so, outstanding performers with higher scores in PASS have a better chance of winning future bids (Fung, 2006:8.7).

### ***2.5.5.2 The United Kingdom***

The issue of raising construction quality has received attention worldwide and was integral to a Rethinking Construction initiative in the UK that flowed from the Egan Report (1998) on the scope for improving the quality and efficiency of construction. Specifically, the Egan Report noted that under-achievement could be found in the growing dissatisfaction with construction among both private and public sector clients. Projects were widely seen as unpredictable in terms of delivery on time, within budget and to the standards of quality expected. Specifically, key performance indicators (KPIs) are used in the United Kingdom to measure construction performance (Construction Excellence 2003), the purpose being to facilitate project and business performance measurement throughout a large number of projects and hence give an indication of construction industry performance. KPIs measure client satisfaction, product, service, construction cost, construction time, defects and predictability time, profitability, productivity and safety.

### ***2.5.5.3 Singapore***

CONQUAS was introduced in Singapore in 1989 and served as a standard assessment system on the quality of building projects (Building and Construction Authority, 2012). CONQUAS became a national yardstick for the industry in that country, though it has been fine-tuned periodically to keep pace with changes in technology and quality demands of a more sophisticated population. Thus, CONQUAS has been widely recognised and accepted internationally as a benchmarking tool for quality. Countries such as the UK and China have successfully adapted CONQUAS to their construction industries. CONQUAS is now a registered trademark in Singapore, Malaysia, China, the UK, Australia and India.

### ***2.5.5.4 South African Bureau of Standards (SABS)***

The South African Bureau of Standards (SABS) deals with standards and codes of practice which relate to conventional products, while Agreement SA assesses innovative, non-standardised building materials, products and systems. Therefore, facilitating the acceptance and use of innovative technologies through product assessment and certification are closely linked to the regulatory environment. All building in SA must

comply with the National Building Regulations (NBRs). Application for building plan approval must be made to the local authority which then applies the NBRs when considering such applications.

However, although the regulatory process sets minimum standards, in practice few builders and contractors construct buildings to more than the minimum required, in which case the regulations can be seen as hindering the introduction of innovation and promoting new technologies (Cattell, 1999). Therefore, successful innovation is a complex task for ECs that do not have the means or knowhow to invest in R and D activities (Avermaete, *et al.* 2003) or cannot always convert research and development into effective innovation.

#### ***2.5.5.5 The Joint Building Contracts Committee (JBCC)***

The JBCC is a difficult contract and not well understood by contractors. This is a major problem as few of the ECs have in-depth knowledge on their responsibilities, liabilities and procedural clauses (Greyling, 2012). The industry is too technical and ECs are intimidated by the conditional clauses and the knowledge of the professionals. Some contractors are ignorant about the contract clauses, such as on labour, contractual and risks. Although JBCC is a good contract, however, at least 80% of contractors have very little knowledge of it (Greyling, 2012), and it should be well work-shopped (if the contract is signed) to empower the contractors on knowing what they are signing. Contractors need to understand the terms and conditions. Currently, contractors perceive clients as more protected than the contractor (Greyling, 2012).

#### **2.5.5.6 International Federation of Consulting Engineers (FIDIC)**

As discussed above, construction quality is at the core of various initiatives in Singapore, Hong Kong, Malaysia, and other countries. Along similar lines, the International Federation of Consulting Engineers (FIDIC) confirmed that failure to achieve appropriate quality standards in the industry is a problem worldwide, and is evident in both developed and developing countries. In response to the need for improving quality, the FIDIC established a Quality of Construction Task Force, which has resulted in a range of quality management guides.

## **2.5.6 Legal and regulatory factors**

There are legal and regulatory compliances that ECs are required to observe which have impact on construction business performance. These include excessive bureaucracy, health and safety factors and environmental factors.

### ***2.5.6.1 Excessive bureaucracy***

In the South African construction industry, ECs are required to be registered with the CIDB, a board that manages the development of ECs. However, ECs in the construction industry seem to be trapped in the registration process in which most of them (Grades 1 – 6) do not have financial means to be registered to the higher financial grades (7 – 9). Approximately 8,300 enterprises (approximately 76% of which are black-owned) are currently registered with the organisation in Grades 1-6 and above in general building (GB) and civil engineering (CE). Currently, registration is not compulsory, hence ECs perceive the system of grading as an expensive inconvenience with no value (Greyling, 2012). Small businesses in the construction industry's track record is relevant in the industry as they strive to become main contractors and need to improve CIDB grading. Building a track record is prevalent during periods of industry downturn, when there is increased competition for prime contracting and companies need to sustain overheads and track record to maintain grading on the CIDB Register of Contractors (Greyling, 2012).

### ***2.5.6.2 Health and safety factors***

The Health and Safety Act, as amended by the Occupational Health and Safety Amendment Act (181 of 1993), provides for the health and safety of persons at work in connection with the use of plant and machinery and the protection of persons, and against hazards to health and safety. The objective of a safety programme is to eliminate losses due to poor working practices that could impact workforce wellbeing (Windapo and Oladapo, 2012). Accidents during a project can be detrimental to the project in terms of time, costs, and the reputation of the company (Sidumedi, 2009; Chan and Chan, 2004), and may lead to poor time and cost performance. In the case of accidents, work may stop in one area of the job, worker morale may drop and productivity may decline.

Health and safety compliance issues negatively impact on the main contractors if they are legally responsible and many have to carry the compliance costs of subcontractors who have neither the technical expertise nor the resource to invest in these legislative requirements (CIDB 2013). According to the CIDB (2013), some main contractors reported that their sites had been closed down because of poor compliance by the subcontractors, a situation that negatively impacts on schedules and the overall profitability of a project. The number of people who are get injured or die in the South African construction industry has remained high (Windapo and Oladapo, 2012). These accidents and fatalities have been attributed to non-compliance by contractors with health and safety regulations on construction sites (Warwick, 2011; CIDB, 2009). The reasons cited in literature are that some individuals are ignorant of the law or in other cases the contractors take chances (Windapo and Oladapo, 2012). On the other hand, Smallwood and Venter (2002) have attributed this to lack of knowledge and inadequate training of site workers and contractors regarding the cost of complying with regulations as an unnecessary financial burden (Windapo and Oladapo, 2012).

The impact of health and safety non-compliance is demonstrated by the following quote extracted from the Department of Labour (online: 2014):

**Construction worker dies in horrific accident (2007):** A 45 year old male worker was killed whilst driving a construction vehicle at Okahlamba District, Bergville. The worker seemed to have lost control of the vehicle whilst approaching a gravel road and was flung out of the cab, crushing his skull. His left leg and hand were also severed in the accident. A document audit in terms of Occupational Health and Safety requirements has revealed that:

- No Health and Safety plans were in place
- No proof of Health and Safety induction for the deceased was available.
- When the incident occurred there was no construction supervisor on site.
- The construction company had not conducted a risk assessment prior to commencing work.

Smallwood, *et al.* (2002) attest that workers are not consulted about health and safety by management; workers are seldom provided with personal protective equipment (PPE); programme, policy and rules are non-existent; there is no appointment of health and safety representatives; inspections and meetings are not conducted; and the workers perceive the supervisors do not prioritise health and safety. Literature has shown lack of training as a major cause of non-compliance by workers with health and safety legislation on sites (Smallwood and Venter 2002; CIDB, 2009).

According to Windapo and Oladapo (2012), contractors perceive health and safety regulations as an additional burden, giving rise to unnecessary costs. In view of the perceived additional costs, Smallwood (2004) estimated cost of implementing health and safety systems within a company as between 0.5% and 3% of total project costs, relative to safety training, safety induction, medical requirements, personal protection requirements and expensive first aid requirements. A study by Baxendale and Owain (2000) established that the costs of implementing health and safety by ECs on sites are higher than those on larger sites.

#### ***2.5.6.3 Environmental factors***

The issue of environmental performance measure was pointed out by Chan and Chan (2004). In South Africa, considerable attention has been directed towards finding out how to minimise construction waste and restrict environmental nuisance. As a result, companies invest in the improvement of environmental protection because of cost factors (Yao, *et al.* 2006). Owing to stringent legal and contractual requirements there are increasing demands, expectations and emphasis on safety, quality and environmental protection (Lai and Lam, 2010).

#### ***2.5.6.4 Singapore***

The Building and Construction Association (BCA) Green Mark Scheme was launched in 2005 as an initiative to drive Singapore's construction industry towards more environmental friendly buildings (Building and Construction Authority, 2013). The scheme was intended to promote sustainability in the built environment and raise environmental awareness among developers, designers and builders when they began

project conceptualisation and design, as well as during construction. BCA Green Mark provides a meaningful differentiation of buildings in the real estate market, as a benchmarking scheme that incorporates internationally recognised best practices in environmental design and performance. This has had a positive effect on corporate image, leasing and resale value of buildings. In this country, the Green Building Masterplan has encouraged, enabled and engaged industry stakeholders to step up efforts in environmental sustainability (Building and Construction Authority, 2013). The BCA has continued championing a proactive and holistic approach of tackling challenges, such as greening of the existing building stock and the building of industry capabilities.

### **2.5.7 Strategic planning**

Strategic thinking has engaged the brains of business leaders for centuries (Skaik, 2009). Due to inherent characteristics in the construction industry, businesses ought to adopt dynamic and effective strategic management to secure proper growth and to remain competitive. Strategic management is necessary to any business working in construction because there is a rapidly changing environment with adverse competition and surprises which act as serious threats to organisation stability. Strategy acts as a guiding map for the business to achieve its clear intention for development and growth. According to Mintzberg (1994), there is very little evidence of strategic management implementation and effectiveness in organisations, which may explain why ECs in the construction industry perform below required standard. This could be a result of poor management awareness, lack of clarity about decision-making, inadequate communication and collaboration and low levels of accountability. Most of strategic plans fail because they are exported without being generated from the heart of the local dynamic environment and the business's culture (Skaik, 2009).

Strategic planning involves the setting of long-term organisational goals, the development and implementation of plans and the allocation or diversion of resources necessary for realising them (O'Regan and Ghobadian 2002). The purpose of strategic planning is to enable a business to gain as efficiently as possible a sustainable edge over its competitors (O'Regan and Ghobadian 2002). ECs that engage in strategic planning, compared to those that do not, are more likely to achieve higher sales growth, returns on assets, margins on

profit and employee growth (Carland and Carland, 2003; Gibson and Cassar, 2005). Conversely, failure to adequately plan often leads to business stagnation and failure (Chawla, Khan and Pahls, 2012). An examination of literature show that general management, financial planning and control are the most commonly cited contributors to business mortality (Thwala and Phaladi, 2009). Earlier, Rue and Ibrahim (1998:27) had investigated the planning process in small businesses and the relationship between planning sophistication and performance, finding that about 60% of the small businesses had some form of written plan and there was a moderately significant relationship between planning sophistication and self-reported performance relative to industry standard. It found no significant relationship between planning sophistication and return on investment (ROI) but a significant relationship between planning sophistication and sales growth rate. As a result, small businesses that do not prepare business plans have a greater chance of failure than those that do (Lussier and Corman, 1995). In spite of this, empirical evidence supporting a significant relationship between small business planning sophistication and performance appears limited and mixed.

Despite the importance of strategic planning, ECs have been accused of being 'strategically myopic' and lacking the long-term vision as to where their company is headed (Thwala and Phaladi, 2009). The concern is that by neglecting strategic planning, ECs may not achieve full performance and growth potentials and survival could be placed at risk (Kazaz and Ulubeyli, 2009). Strategic plans are often formulated on the basis of changes that can be foreseen (Ruerket and Walker, 1987), which involves selecting business mission and goals, analysing business's external competitive environment to identify opportunities and threats, analysing the internal environment to select strategies that build on the identified strengths and correct weakness in order to take advantage of external opportunities and counter external threats (Hill and Jones, 2009). ECs tend to operate in environments that are difficult to foresee or influence because of limited market power (Alpkan, *et al.* 2007:157), hence the strategies of ECs involve an iterative process of trial and error in response to market changes. This means the planning activity in many ECs is in the form of frequent adaptations of simple operational procedures to changes in the environment.

A study by Adendorff, Appels and Botha (2011) focusing on strategic management in the Eastern Cape Province construction industry indicates that ECs that practise strategic

management perform better. There were many advantages for ECs to adopt strategic management principles at the business level, and results showed an EC that had grown from a small enterprise into an established medium-sized one both in terms of annual turnover and number of employees. Currently, the business is capable of successfully completing multimillion rand projects in both general building and civil engineering construction works (Adendorff, Appels and Botha, 2011). The study attributed the success of the enterprise to the strategic objectives set by the enterprise and the corporate strategies that were pursued by enterprise.

The success of the construction business in the Eastern Cape is attributed to the use of joint venture, partnerships, acquisition, and subcontracting, vertical integration and diversification strategies employed by the SBE. Business level strategies that included cost leadership and focus strategy were also used (Adendorff, Appels and Botha, 2011). Other strategies used by the business included competitor analysis, business capabilities in terms of resource allocation. The business conducted a SWOT analysis to keep abreast of its strengths and weaknesses and to identify threats and opportunities in its environment (Adendorff, Appels and Botha, 2011).

### **2.5.8 Performance improvement**

Sustainable construction is one example that has received growing interest in both the private and public sectors. The U.K. government published a strategy for sustainable development, “A Better Quality of Life,” with researchers as well as companies looking for ways to improve construction sustainability and subsequently to measure it. Another example of performance improvement trends is social responsibility, of increasing interest to companies worldwide and across industries. Quality assurance standards, such as the ISO14000 family and business excellence models, such as EFQM, have addressed performance standards in economies such as Japan’s. Other trends include knowledge management, lean construction, and concurrent construction. Improving efficiency and quality learned, including benchmarking, value management, team working, Just-In-Time, concurrent engineering, and TQM (Egan 1998), have been used to improve efficiency in various industry, such as manufacturing.

Through TQM, quality becomes the responsibility of all departments and sections in the organization. It places the customer at the forefront of decision-making and this supports the market orientation concept (Narver and Slatter, 1990; Kohli and Jaworski 1990) that argues that a firm must become the best at satisfying the needs and wants of customers in the markets it chooses to serve with the purpose of building long-term, mutually satisfying relationships and co-prosperity among key stakeholders (Kotler and Keller, 2006). TQM requires a process of continuous improvement that embraces people, suppliers, material, equipment and procedures. The process of improvement is popularly known in Japan as the *kaizen*, a philosophy by which every aspect of an operation can be improved, with an end product being perfection, sought but seldom achieved, particularly in the construction industry. Other quality concepts that should be considered when implementing TQM, according to Heizer and Render (2006), include employee empowerment, benchmarking and the Just in Time (JIT) system.

## 2.6 CLARIFICATION OF CONCEPTS

The key operational terms used in the study are defined in this section.

In this study, the **critical incident technique** (CIT) definition is guided by Chell (1998), as a qualitative interview procedure which facilitates the investigation of significant occurrences (events, incidents, processes or issues) identified by the respondent, the way they are managed, and the outcomes in terms of perceived effects.

The **construction industry** is defined as an economic entity which plans, designs, constructs, alters, maintains, repairs and eventually demolishes buildings of various kinds, including architectural, structural and civil engineering works, mechanical and electrical engineering structures and other similar works (Ofori, 1990). The construction industry is a project-based sector within which individual projects are usually custom built to client specification (Akiner and Akiner, 2009).

In this study a **contractor** is a person or body of persons who undertake/s to execute and complete construction works (Act of Parliament, 38 of 2000).

The CIDB Act defines **emerging enterprise** as one which is owned (at least 50%), managed and controlled by previously disadvantaged persons and which is overcoming

business impediments arising from the legacy of apartheid. This refers to small-scale construction enterprises in CIDB graded 2 – 3 (CIDB 2010), however, for the purpose of this study, emerging contractors refers to CIDB graded 2 construction businesses.

**Small business executives** are appointed and given the responsibility to manage the affairs of an organisation and the authority to make decisions within special boundaries. In this study, executives are defined using the Paterson Grading System, which is used in South Africa as an analytical method of job evaluation. The Paterson system analyses decision-making components of work and sorts jobs into six major groups (Jordan, *et al.* 1992), as shown in Table 2.3 (below):

**Table 2.3: The Paterson Grading System**

GRADE	DECISION MAKING
A	Prescribed decisions
B	Co-ordinating Automatic decisions
C	Co-ordinating Routine decisions
D	Co-ordinating Interpretative decisions
E	Co-ordinating Programming decisions
F	Co-ordinating Policy decisions

**Source:** Own Compilation from literature

Using the Paterson’s Grading System, in this study small business executives (SBEs) are those employees on levels E and F based on the decisions they make with the ECS organizational structures. This included the top team members of each emerging construction enterprise registered with CIDB in Grade 2 and included Chief Executive Officer, Chief Financial Officer, Contract Director and Marketing Director.

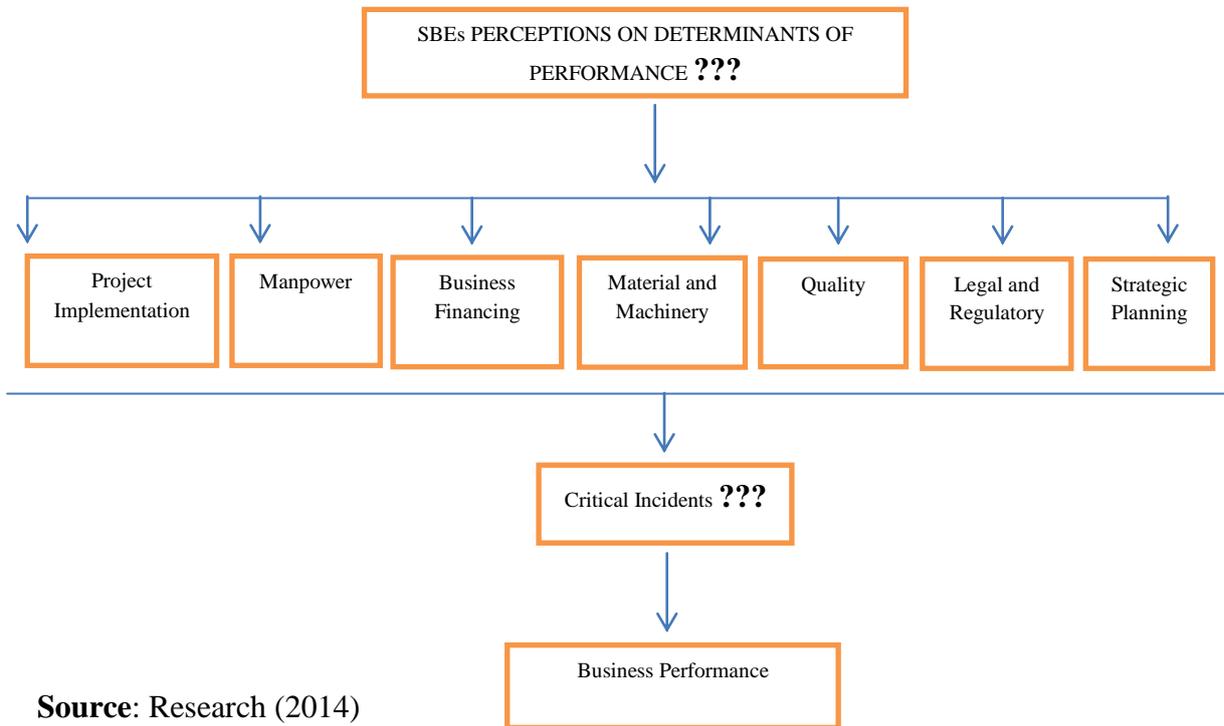
**Determinants** are factors that promote or impede small construction business performance.

As no two people will see the world in the same way, in this study, **perception** is the interpretation of reality by SBEs on performance determinants based on their values, beliefs and other elements of their personal background in construction environment.

### 2.6.1 Conceptual framework of the study

The conceptual framework for this study was based on the determinants of ECs' performance as identified from literature reviewed. This framework was used as a tool in finding the suitable setting for small businesses that could be used to predict performance. A conceptual framework is a structure that consists of blocks of concepts presented in a manner that shows how the concepts are interrelated (Msweli 2011). The conceptual framework that represented the gaps identified in literature is shown in Figure. 2.5 (below).

**Figure 2.5:** Conceptual framework of the study



**Key:** ??? = Demonstrate the gaps identified in literature.

## 2.7 SUMMARY AND IDENTIFICATION OF THE GAP

The theoretical and empirical literature on the concepts of EC business performance and the determinants were reviewed in this chapter. The frameworks that have a bearing on this study have been discussed, namely the BSC model, the EFQM excellence model, the PMPF model and the SACEM. The frameworks have been noted as important as they embrace the concept of total quality management (TQM) and are becoming increasingly recognised as vital to the continued success of businesses (Beatham, *et al.* 2004). While there are other frameworks for performance measurement implemented within the construction industry, the EFQM excellence model, the BSC model and the KPIs model are those most frequently used for performance measurement in construction (Yang, *et al.* 2010). However, Robinson, *et al.* (2005) have argued that these three models play important roles in the performance measurement of the UK construction businesses. Neely, *et al.* (2001) found that performance is multi-faceted and that each framework holds its advantages and limitations. These frameworks for performance measurement are effective and practical because they help to evaluate the performance levels in a more quantitative and objective manner.

While these frameworks have guided the analysis of contractors in other parts of the world, the performance problem, especially of ECs in South Africa, has remained a cause of concern as little has changed. Although these models have been studied and applied in other parts of the world, most of the studies in this area have to date been conducted in the developed countries of the West, with relatively little research conducted on these frameworks to confirm their effectiveness in the South African context. Against this background, there is no common understanding that can be relied upon to explain the determinants of ECs' performance in South Africa as the frameworks have not provided a systematic explanation towards these determinants.

Drawbacks identified by different authors with the implementation of the KPIs in various countries include:

- Subjective assessment of some of the key measures such as satisfaction of customer (Chan and Chan 2004),
- Some of the measures are crude and open to interpretation (Fernie *et al.*, 2006).

- Lack of involvement with top-level coordinating agencies (Ferne, *et al.* 2006).
- There are many KPIs underway at the same time, which leads to fragmentation and frustration in the industry (Kagioglou, *et al.* 2001).
- Large investment (cash and in-kind) is required to implement, measure and report on the data (Robinson, *et al.* 2005).

Similarly, the frameworks that have been developed in South Africa, for example, the SACEM and the ECDP, have generally failed to empower ECs because these are implemented without well-defined skills transfer frameworks (Lazarus, *et al.* 2007). Thus, ECs have failed to take the strategic role through high performance and have remained plagued by lower performance levels and higher risks of business failure estimated between 70% and 80% (Olawale and Garwe 2010; Kunene, 2008; Santelli and Vivarelli, 2007; Von Broembsen, *et al.* 2005; Cant and Brink 2003). Based on the apparent underperformance of ECs in South Africa, the development of more performance enhancement frameworks is necessary. According to Yang, *et al.* (2010), there is no single framework or approach that fits all situations, however, each framework has its advantages and disadvantages, and it is an important task to develop a more comprehensive performance measurement framework in construction in the future.

Overall, there are four major contributions that have emerged from the theoretical foundation. Firstly, the major frameworks for performance measurement in the construction industry have been discussed: EFQM excellence model, BSC model, KPIs model and SACEM. Secondly, the frameworks discussed agree that performance measurement studies in construction can be divided into three levels, project, organisational and stakeholder. Thirdly, the discussion has shown that EFQM excellence model and the BSC model are the most frequently applied to the organisational level, except that the project excellence model, which is developed from the EFQM excellence model, is applied to the project level. Fourthly, the KPI model can be used at project, organisational and stakeholder level. The advantages and disadvantages of each framework have been discussed, showing that no single framework fits all situations.

From the review of literature, a few gaps in knowledge emerged as researchers have constantly omitted to identify and examine the role played by the perceptions of SBEs, particularly those registered with CIDB Grade 2 in the construction industry. Instead, the

studies concentrated on one or selected areas of ECs' performance. Mbachu and Nkado (2007) looked at the factors constraining successful building project implementation in South Africa, but the study was limited to the views of the Association Construction Project Managers and the Master Builders Association. On the basis of the views of the managers, the results indicated that a set of consultants' and contractors' acts of omission or commission were the most influential and most frequently occurring factor constraining successful project delivery in the South African building industry (Mbachu and Nkado, 2007). The findings of the study were based on a convenience sampling method.

Ncwadi and Dangalazana (2005) conducted an exploratory study into the challenges facing the ECs involved in the construction of low cost housing in South Africa. Among other issues, their study looked at business leadership, business strategy and planning, customer and market focus, people management, resource and information management, business processes, customer satisfaction, supplier and partnership performance, business results as well as health and safety issues. The sampling frame was limited to a database of ECs obtained from the Nelson Mandela Housing Department and Progress Project Management Services in Port Elizabeth, using a purposive sampling method.

Windapo and Oladapo (2012) limited their study to the determinants of construction compliance with health and safety regulations in South Africa, based on a combination of convenience and snowball sampling methods to obtain data from 53 contractors who agreed to participate in the survey. Fugar and Agakwah-Baah (2010) investigated the causes of delay of building construction projects in Ghana to determine the most important factors, but used convenience sampling based upon who was available and willing to participate and fast and convenient, which has potential for bias (Frey, *et al.* 1991) so the results of this study cannot be relied upon. This method could be probably the most common sampling strategy and the least desirable. The challenge of using this method is that researchers tend to pick respondents and cases that are easy to access and inexpensive to study. While convenience and cost are real considerations, they should be the last factors to be taken into account after strategically deliberating on how to obtain the most information of greatest utility from the limited number of cases sampled (Patton, 2002).

Many studies have concentrated on selected aspects of construction businesses when trying to determine what factors affect performance. Ladzani, *et al.* (2012) concentrated on the use of leadership and strategic planning functions in improving the management

performance of ECs in the Province of Gauteng. Baloyi and Bekker (2011) looked at the causes of construction cost and time overruns, focusing on the 2010 FIFA World Cup stadia in South Africa. Thwala and Mvubu (2009) looked at the challenges and problems facing small and medium size contractors in Swaziland. The results were based on a judgemental sampling method.

In reality, SBEs play an important role in construction business success. SBEs encounter incidents that either enable or hinder the performance of ECs operations. Against the background that SBEs being the business custodian of the substantial experience which has not been accessed or harnessed, it is therefore imperative to engage SBEs in the construction industry and tape their experiences on the determinants of small business growth and their implications in South Africa. Any business practise is driven under the direction of executives whose perceptions on business policies and practices can build or destroy business performance. By highlighting SBEs' perceptions on determinants of ECs' performance and working towards a more positive engagement with SBEs, one could encourage understanding among SBEs, policymakers and other interested parties.

The next chapter describes the research methodology, data gathering method and data analyses.

# CHAPTER THREE

## RESEARCH METHODOLOGY

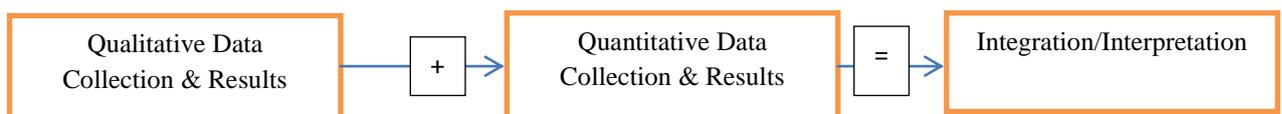
### 3.1 CHAPTER INTRODUCTION

This chapter is organised around the appropriateness of the research design, the population sampling and detailed description of the data collection instruments. The method used for data analysis is explained with a brief description of how validity and reliability were ensured. According to Webb and Auriacombe (2006), it is important in a research project to select those methods and techniques that are appropriate to the research goal. This research looked at proper methods of investigating and exploring a phenomenon and survey.

### 3.2 THE RESEARCH DESIGN

Flick (2006) defines a research design as a plan for collecting and analysing evidence that will make it possible for the investigator to answer questions posed to the target population. This study employed a mixed-method approach to explore the determinants of ECs business performance by applying both qualitative and quantitative research to provide a better understanding of the research problem than either form itself. According to Creswell, (2008) a mixed-method study presents the researcher with an opportunity to make a more convincing argument through triangulation, used to check if there was convergence, corroboration and correspondence of results. The first phase of the design was qualitative, with which in-depth interviews were conducted to define the various thematic areas that led to the development of the quantitative assessment part of the study (phase two) as shown in Figure 3.1 (below).

**Figure 3.1: Mixed method design (Exploratory design)**



**Modified from:** Creswell and Clark, (2011)

The researcher used a cross-sectional study design carried out in the Gauteng Province, which allowed for the determination of the prevalence of certain perceptions of SBEs, hence establishing the important determinants which helped set the strategy for performance improvement. Because there has been no similar study on the perceptions of SBEs on determinants of performance in the construction industry the design was considered appropriate, the nature of the information required making the adoption of the mixed-method approach most appealing. This was in line with Denzin and Lincoln (2008), who note that, epistemologically, a multi-methodological approach enables far richer insights to be gained on the phenomenon under consideration. Abowitz and Toole, (2009) also note possible improvements in validity and reliability of data as a result of the use of the approach.

### **3.2.1 Qualitative approach**

The knowledge on SBEs' perceptions was augmented by interviewing ECs' chief executive officers, chief financial officers, contract directors and marketing directors as representatives. This means detailed descriptions of situations, events, interactions and observed behaviour from respondents about their experiences, attitudes, beliefs and thoughts, correspondences, records and case histories were collected and investigated, in line with Flanagan (1954). By using a qualitative technique, the findings had greater validity as the process revealed in-depth understanding and richness of the situation (Cooper and Schindler, 2011). However, the technique was undermined by the subjectivity and susceptible to human error and bias in data collection and interpretation. The results could not be generalised to a larger population, considered a fundamental weakness for the approach. Measuring perceptions which are subjective norms needed to be quantified, hence a quantitative component was added to explain the quantifiable perceptions as measured on a Likert scale.

### **3.2.2 Quantitative approach**

A quantitative research approach is grounded on the positivist social sciences paradigm, which primarily reflects the scientific methods of the natural sciences. In line with Creswell (1994), a quantitative research approach was used in this study because it is an

effective design for research questions related to measuring how much the perceptions were determinants of ECs' performance. Quantitative method involves the use of numerical and statistical analyses of measurements to examine social phenomena (Cooper and Schindler, 2011). Numerical data was gathered on variables in establishing how dependent or independent variables were through the lens of statistical tools. The advantages that were considered for using this method included its great premium on objectivity and reliability of findings. The method was triggered by large amounts of data obtained from the survey, but whilst the researcher's influence on the research was significantly reduced, thereby minimizing bias (Saunders, *et al.* 2003), quantitative research may not always be appropriate as it cannot accurately or reliably measure phenomenological issues such as perceptions, thus reducing the validity of the findings.

### **3.2.3 Integration of the research designs**

The results received from both qualitative and quantitative data were subject to integration, defined by Creswell, (2003) as a combination of both forms of research within a given stage of enquiry. It occurred within data analysis whereby transformation of qualitative themes into quantitative items was carried out and interpretation of both forms was assessed for convergence and divergence.

## **3.3 POPULATION OF THE STUDY**

The research population was limited to the ECs in Grade 2, registered with CIDB in Gauteng. The ECs that engage in General Building (GB) and Civil Engineering (CE) became the target population, however, it was noted that CIDB would not include every potential contractor of the same size in the province and such contractors were thus excluded. The registration database reflected 1,890 urban based ECs in Grade 2 registered with the provincial board. Grade 2 contractors are typically established and developing contractors that operate at a local level (Windapo Oladapo, 2012; CIDB, 2013). The details of the distribution of the total number of registrations in terms of class of work in Gauteng Province are shown in Table 3.1 (below).

**Table 3.1: Number of ECs in CIDB database grade 2 in year 2013**

<b>CLASS OF WORK</b>	<b>TOTAL REGISTRATION</b>	<b>PERCENTAGE</b>
GB	1 284	68
CE	606	32
Target Population	1 890	100

**Source:** Own compilation from CIDB Database (2013)

Gauteng Province was selected based on the level of business confidence recorded during the financial year 2011 /2012 (*CIDB Quarterly Review*, 2013), when the province appeared the most prosperous in SA, also having a high concentration of construction works. On the bases of accessibility and time factors for the study, urban based ECs were considered. The participants were all executives of the respective ECs, which was in line with the research design.

The study focused on ECs in Grade 2 because using a single category in a sector enabled control of specific factors or an “industry recipe” (Masakure, *et al.* 2009) that everybody in the industry should recognise. The use of a single sector and particular grade made it possible to generalise the results beyond the studied provinces and particular CIDB grades. An EC was included in the target population if it met the following parameters:

- The business operation was registered with CIDB Grade 2 in the construction industry and operated business in the geographic location of Gauteng.
- The business had been in the construction sector for more than one year, because ECs that were very young might not have fully encountered construction business incidences that affected performance and this would skew the results.
- The business that employed between four and ten full-time employees, because it was the focus of the South African Government.
- The unit analysed comprised the SBEs (chief executive officer, chief financial officer, contract director, marketing director and other executives) as

representatives of ECs in the sample set. The unit of analysis is the entity being analysed, for example individual people, groups and/or organisations. It describes the level at which the research is performed and which objects are researched (Serumaga-Zake, 2011). By virtue of their seniority within the enterprise, SBEs were in an ideal position to give valuable information on the determinants of ECs' performance. The reasons for selecting this unit of analysis were that SBEs have high degree of encounters which are significant for the performance of the business and play a more active role in decision-making, strategy formulation, implementation and reporting within an organisation. SBEs are also directly responsible for making strategies and encounter incidences that facilitate or impede such business decisions.

### **3.3.1 Sampling for qualitative data**

The qualitative research phase selected ECs who had been involved in the construction work within the Gauteng Province, and the sample size was determined according to Flanagan's (1954) recommendations that adequate coverage has been achieved when the addition of 100 critical incidents to the sample adds only two or three critical behaviours. Based on this recommendation, six ECs were purposefully selected from the target population as all were available. There are no rules for sample size in qualitative inquiry, rather it depends on what the researcher wants to know, the purpose of the inquiry, what is at stake, what would be useful, what would have credibility and what could be done with available time and resources (Paton, 2002). Interviews were conducted with one SBE as representative of each EC.

### **3.3.2 Sampling for quantitative data**

The sampling frame used for this study was constructed from a CIDB database, this being less costly than custom-made lists, and the register was current with new establishments. However, the researcher was aware that government organisations such as the CIDB are slow in dropping establishments that have gone out of business.

A probability sampling method was used to ensure that each member of the EC population was given a known non-zero chance of selection. Probability sampling guaranteed every member in the CIDB database a known and equal chance of being selected for the sample (Cooper and Schindler, 2011; Zikmund, *et al.* 2010), so the resulting sample was a valid representation of the EC population registered in Grade 2 with CIDB in the province. Specifically, the systematic sampling method was used to ensure adequate representation of all its ECs.

### 3.3.2.1 *Sample size determination (quantitative data)*

Sample size determination is crucial to any empirical research, as too small a sample size undermines the power of the statistical tests of significance while a larger one has less chance of producing results that are uncharacteristic of the population as a whole (Cooper and Schindler, 2011). The sample size determination for this study was based on the perception of small business executives in the construction industry, thus, the estimate was given by formulae adapted from Donner, Birkett and Buck (1981):

$$n = (Z)^2(p(1-p))/(\delta)^2, \text{ Where}$$

$$Z = 1.96 \text{ (corresponding to 5\% significance level)}$$

$$n = \text{number of companies in the study}$$

$$\delta = \text{the detectable difference or design effect.}$$

$$P = \text{Proportion of companies with positive perception towards business (assumed to be 0.50 since the researcher had no idea of perceptions in this population).}$$

Using this information the sample size required was 385 ECs, but since not all would respond to the questionnaire this necessitated adjustments for attrition rates. It was anticipated that 30% would not respond to the questionnaires, hence an adjustment for these gave a required minimum sample size of 501 ECs in Gauteng.

### 3.4 PHASE ONE: MEASURING QUALITATIVE DATA

The qualitative data for the study was measured using a self-developed interview guide (Appendix B).

#### 3.4.1 Development of the in-depth interview guide

Critical incident scales, for example, Keaveney (1995), and Bitner, *et al.* (1994), tested and used in other business sectors such as tourism and hospitality (Serenko and Stach (2009), marketing, customer satisfaction (De Matos, *et al.* 2009) were examined. The interview guide items for this study were adapted and modified from these previous instruments (e.g., De Matos, *et. al.* 2009; Schluter, Seaton and Chaboyer, 2007; Serenko, 2006). The developed guide was structured in a manner that grounded events or actual critical incidents (Flanagan, 1954; Keaveney, 1995) that had caused ECs high (low) performance would be collected. There were seven open-ended questionnaires that were administered to collect data from the key informants. SBEs were requested to identify incidents that led to high or low performance in their construction businesses, however, since the interviews were verbal reports only, the key informants' responses were subject to the common problems of bias, poor recall, and poor or inaccurate articulation (Yin, 2009).

Table 3.2 (below) is an example of an interview guide from which items for the instrument were adapted and modified:

**Table 3.2: Instruments used in previous investigations**

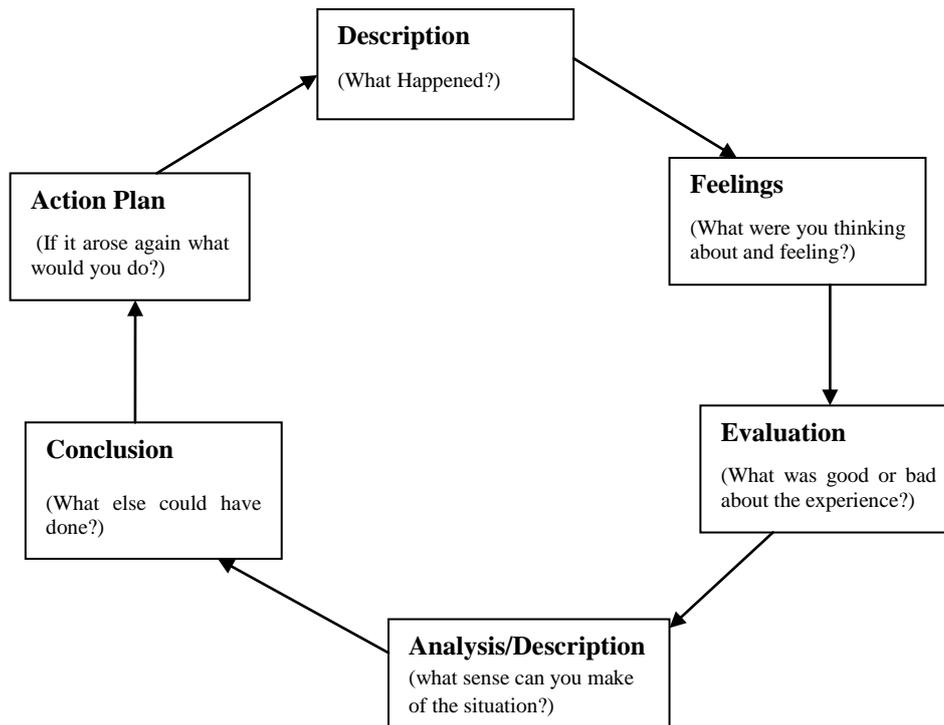
SCALE ITEMS	BUSIENSS SECTOR	IDENTIFIED AUTHOR
<p><b>Description</b>-What happened?  <b>Feelings</b>-What were you thinking?  <b>Evaluation</b>-What was good or bad about the experience?  <b>Analysis</b>-What sense can you make of the situation?  <b>Conclusion</b>-What else could you have done?  <b>Action Plan</b>-If the situation arose again, what would you do?</p>	<p>Banking Sector                      (Asian Development Bank- ADB)</p>	<p>Gibbs (1988)</p>

**Source:** Adapted from Gibbs (1988)

Since the study focused on emerging contractors in South Africa, it was not appropriate to replicate the previous instruments to the ECs in South Africa without adjusting them. The guide was adjusted because the majority of the previous instruments were developed in other countries, such as the USA, and could not fit the South African environment. Rather, an adjusted instrument was developed to suit the context, and specifically the Gauteng construction sector. The measurement items were all aimed at identifying the incident, showing its influence on business performance or identifying the appropriate action. The interview guide required data on the incidents encountered by the SBEs, so in these questions, respondents had the opportunity to explain the critical incidents that influenced their construction business performance. The items were checked to ensure questions were relevant to the study.

The measures used in this study were consistent with those used by Serenko (2006), Keaveney (1995), Bitner, *et al.* (1994), Kelly, Hoffman and Davis (1993), Bitner (1990), and Flanagan (1954), which had been considered reliable in those studies. The development of the instrument was also guided by a reflective cycle adapted from Gibbs (1988) as indicated in Figure 3.2 (below). The reflective cycle highlighted six stages of the process and included description of the incident, feelings that left the emerging contractor happy or dissatisfied with the incident, evaluation, analysis, and conclusion. Finally, the appropriate action to be taken if a similar incident recurred was considered.

**Figure 3.2: Incident reflective cycle**



**Source:** Adapted from Gibbs (1988)

### 3.4.2 Qualitative data collection procedure

The interview guide was sent to six respondents a week prior to the interview and recording, allowing the participants to prepare themselves and ensure that the same general areas of information would be collected from each. On the interview date, the researcher recorded the stories and situations as reported by SBEs on a standardised form, however, the researcher had to travel to the respondents' offices, which were more costly than other methods. Verbal consent was obtained from each participant prior to the interview.

### 3.4.3 Qualitative content analysis

The collected data was summarised and described in a manner that could be effectively used in this study. The results were subject to content analysis, which according to Holsti (1969) is a technique for making inferences by objectively and systematically identifying specified characteristics of messages. Heish and Shannon's (2005) definition of qualitative

content analysis as the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns was adopted, in order to understand meanings, themes and patterns in the particular text and knowledge of the phenomenon under study.

#### **3.4.4 Incident theme formulation**

The analysis of data began with careful scrutiny of the accounts of the critical incidents, which revealed certain patterns in the material that made it possible to classify the incidents into themes. Data analysis was conducted on the basis of cognitive interest, forming themes that emerged from the data and determining the specificity of the categories. There were no simple rules available for theme formulation (Bitner, *et al.* 1994), and the quality and usability of the final product depended largely on the skill and sophistication of the researcher (Flanagan, 1954).

### **3.5 PHASE TWO: MEASURING QUANTITATIVE DATA**

Based on the findings obtained from the qualitative interview guide, a questionnaire survey was developed to evaluate the perceptions of SBEs, whilst in order to highlight their perceptions of the determinants and their impact on ECs' performance, primary data for the study was collected from the chief executive officers, chief financial officers, managing directors, contract directors and marketing directors through face-to-face and telephone interviews and self-constructed questionnaire.

A questionnaire is a widely used approach for descriptive and analytical survey to find out the opinions and views of respondents (Enshassi, *et al.* 2010: 47). In section A of the questionnaire, the demographic characteristics of respondents were requested and the information gathered consisted of gender, age group, ethnicity, construction experience, disability status and level of education. In section B, data on the business profile, including location, age of business, CIDB grading, manpower size, business ownership, service provided and construction project undertaken, was collected. The information in the first two sections helped the researcher interpret the results of the survey, important as statistical significance variance could be checked for all variables (demographic and

business profiles) that had an impact on business performance (Cooper and Schindler, 2011). The variables were measured using closed multiple choice single response and scale questions. Scale questions were linked to a Likert scale from 1 to 5 (by which responses of 1 indicated strongly agree and 5 strongly disagree). The Likert scale is the most frequently used variation of the summated rating scale (Cooper and Schindler, 2011), here chosen because it is easy and quick to construct, reliable, and has a greater volume of data collection than many other scales. The SBEs were asked to agree or disagree with each statement and each response was given a numerical score to reflect its degree of attitudinal favourableness. The scores were summed to measure the SBEs' overall perception. Specifically, the study measured the perceptions from a large number of statements, each of which was considered relevant to the perception being measured and was believed to reflect an agreement or disagreement with that attitude.

Section C requested data about SBE perceptions on determinants of business performance in the construction industry. The determinants were categorised into seven major groups, including the financial factors, manpower, materials, equipment and machinery, project implementation, quality factors, strategic planning, legal and regulatory as identified from key informants in the first phase of the research and literature. Respondents were asked the extent to which they agreed or disagreed with the variables on the role variables had on the performance on ECs. Section D requested information about the perception regarding overall business performance over the previous three years, while section E measured the perception on project performance. The last section, F, asked the respondents to highlight their perceptions on how to improve the performance of South African ECs.

An examination of literature did not show any acceptable instrument (questionnaire) that could be adopted in this study to assess the perceptions of SBEs on the determinants of performance in the construction industry, thus the researcher constructed an instrument based on the variables and constructs from the insight of key informants and the reviewed literature. As far as possible, valid and reliable items were sourced from key informants and previous studies, then contextualised for the present study. A construct is an image or abstract idea specifically invented for given research, while a variable is used as a synonym for construct or the property being studied (Cooper and Schindler, 2011).

### 3.5.1 Demographics

The demographic characteristics used in this study comprised gender, age, ethnicity, disability status, business profile, and educational level, age of business, business location, functional role and nature of service provided. This data was collected in order to compile a respondent profile which conforms to the specific parameters of the study. These items were measured using closed multiple choice single response questions. This section incorporated nominal, ordinal and interval data type, as show in Table 3.3 (below):

**Table 3.3 Demographic characteristics**

Level of measurement	Demographic characteristics	Category	Dummy Variables
Nominal	Gender	Female	1
		Male	2
	Disability	Disabled	1
		Not disabled	2
Ordinal	Age	Less than 20 years	1
		21 – 29 years	2
		30 – 39 years	3
		40 – 49 years	4
		+ 50 years	5
	Education	No Formal	1
		Pre-Matric	2
		Matric	3
		Post Matric	4
		Degree Level and above	5

**Source:** Own compilation

Based on the responses from key informants in the first phase and review of previous research, seven broad themes of performance determinants were identified and the measurement instrument was developed based on these themes. The following section discusses scale items and the related identified authors.

### 3.5.2 Financial determinant scale

The financial determinant scale comprised an analysis of access to finance, payment issues, cost and budget, record keeping and the effect of consultancy as revealed by key informants. The scale items indicate that ECs felt that banks were reluctant to deal with them unless they paid exorbitant interest rates through compulsory business management services. Literature has indicated as constraints both a lack of access to finance during pre-construction, as it disqualifies ECs from meeting guarantee and performance bond requirements; and during construction, as it leads to cash flow problems, incomplete work and even liquidation (Thwala and Mvubu, 2009). As a result, ECs run into problems due to late payments by clients (Thwala and Phaladi, 2009), normally experienced when the client runs into budget difficulties and is unable to pay. Based on key informants, the following financial scale items were developed with the scale items (Table 3.4, below).

**Table 3.4: Financial determinant scale**

Scale Items	Identified related Author
Lack of collateral and assets Late payments towards completed work by clients.	Financing and payment for completed works items are related to CIDB (2013), Fugar and Agyakwah-Baah, (2010), Boyeens (2011), Selamat, <i>et al.</i> (2011), Thwala and Phaladi (2009), Thwala and Mvubu (2009), Otim, <i>et al.</i> (2011), Alinaitwe (2008).
Poor cash flow and budget control	Mbachu, (2012), Chaplin (2010), Thwala and Phaladi (2009) believe that business, financial and accounting skills are equally important, as they help the contractor to make sound economic and financial decisions that result in better project outcomes, especially as it relates to making the best use of financial advantages.
Tender pricing pressure from main contractors.	Mbachu (2012), Thwala and Phaladi, (2009)

High consultancy costs and fees e.g. accountants and architects erode profits.	CIDB (2013), Marx (2102), Boyeens (2011), Thwala and Phaladi 2009, Thwala and Mvubu (2009), Otim, <i>et al.</i> 2011, Alinaitwe (2008).
High registration and annual renewal fees	Coolidge and Ilic (2009), Thwala and Phaladi (2009) indicate poor record keeping by ECs.
Payment of performance guarantee	Coolidge and Ilic (2009), Thwala and Phaladi (2009) indicate poor record keeping by ECs.
<b>Payment problems of rework relative to:</b> <ul style="list-style-type: none"> <li>• Project design errors</li> <li>• Formwork errors</li> <li>• Plumbing errors</li> <li>• Mechanical work faults</li> <li>• Electrical works faults</li> </ul>	The items relating to payment problems of re-work agreed with Emuze (2011), Alinaitwe, (2008), Palaneeswaran, <i>et al.</i> (2006) and modified to suit the study. Emuze (2011) used these variables in a study of non-value adding activities contributing to poor project performance in construction. Re-work occurs when the final or intermediate products do not fit the quality specified.

### 3.5.3 Manpower determinant scale

The issues identified from key informants on manpower included shortage of skills in the industry, labour related problems and weak job satisfaction, as shown in Table 3.5:

**Table 3.5: Manpower determinant scale**

Scale Items	Identified related Author
Shortage of experienced, competent and skilled labour	Thwala et, al. (2012), Thwala and Phaladi (2009)
High rate of labour disputes and strikes	Mbachu 2012, Pheng and Chuan 2005, Cox, <i>et al.</i> 2003
Poor labour supervision and workmanship	Thwala and Phaladi (2009) identified lack of effective management as prohibitive to business performance
Little capacity to deal with the complexities of modern projects	Oduami, <i>et al.</i> (2012), Thwala and Phaladi (2009), Otim <i>et al.</i> (2011), Tushabomwe (2006), Pheng and Chuan 2005)
Contractors, subcontractors, clients and consultants do not work together as a project team.	Ladzani, <i>et al.</i> (2012), Pheng and Chuan (2006), Mbachu (2012)

### 3.5.4 Materials, equipment and machinery scale

The scale items in Table 3.6 (below) comprise issues relating to material shortages, equipment and machinery management as informed by qualitative study and surveyed literature, showing that material shortages occur on building sites on varying levels. This was confirmed by key informants who argued that material shortages were responsible for low level productivity in the industry, as some of those delivered to sites were not used for the intended purpose but became waste on sites.

**Table 3.6: Materials, equipment and machinery determinant scale**

Scale Items	Identified related Author
Lack of technical knowhow on quantity surveying of construction material.	The item was derived from the fact that material management factors can have a significant impact on labour productivity and construction efficiency (Akinsiku and Akinsulire 2012, Odusami, <i>et al.</i> 2012, Emuze 2011, Enshassi, <i>et al.</i> 2009, Otim <i>et al.</i> 2011, Oladapo 2007, Ling, <i>et al.</i> 2009, Mbachu 2008, Mbachu and Nkando 2007, FaridiandEl-Sayegh2006, Beatham, <i>et al.</i> 2004)
Regular shortages of materials on site	Odusami, <i>et al.</i> (2012), Akinsiku and Akinsulire (2012), Emuze (2011), Enshassi, <i>et al.</i> (2009), Otim, <i>et al.</i> , (2011), Pheng and Chuan (2005)
Excessive waste of material during application process e.g. unnecessarily thick plastering	The item was deduced based on the effective materials management has potentials to minimize materials waste and earn cost savings (Odusami, <i>et al.</i> 2012, Emuze 2011, Pheng and Chuan 2005)
Non-conformance of material to specification Loss of material on site due to damage or theft Deterioration of materials due to inappropriate storage	The items were based on key informants' perception on waste as cause of poor project performance, transportation and poor material handling plan, inadequate stacking and insufficient storage on sites and procurement of poor quality material.

### 3.5.5 Project implementation

The scale items for project implementation were developed based on key informants and literature as indicated in Table 3.7 (below):

**Table 3.7: Project implementation scale**

<b>Scale Items</b>	<b>Identified related Author</b>
Poor planning techniques and failure to identify critical activities	Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan, (2005)
Lack of project coordination among parties	Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan (2005)
Unplanned increase in the scope of work from the client	Marx (2012), Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan (2005)
Unrealistic construction planned time by clients	Marx (2012), Ameh (2011), Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan (2005)
Failure to commence project on time due to main contractor delays	Marx (2012), Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan, (2005)
Omissions in the construction plans	Sunday (2010), Otim, <i>et al.</i> (2011), Chitkara (2004), Ssegawa, <i>et al.</i> (2002), Hanna, <i>et al.</i> (2002)
Time spent waiting for samples, materials approval, site inspection, approval of quality control tests and results	Otim, <i>et al.</i> (2011), Oladapo (2007), Chitkara (2004), Pheng and Chuan (2005) noted that idle time in construction caused by the lack of synchronisation, materials approval and material flow.

### 3.5.6 Quality determinants scale

The items for quality scale were based on key informants' perceptions which indicate change of scope, dissatisfaction by client which result from poor quality works and delays to commission some stages of work, low productivity, delayed approvals by the authorities and failure to procure materials and labour on time. These were some of the causes of project failure which translates into poor business performance, as indicated in Table 3.8 (below).

**Table 3.8: Quality determinant scale**

<b>Scale Items</b>	<b>Identified related Author</b>
Architectural drawings lack adequate technical information	Incomplete or unclear design documents lead to mistakes in project execution (Akinsiku and Akinsulire 2012, Baloyi and Bekker 2011, Sunday 2010, Enshassi, <i>et al.</i> 2009, Ling, <i>et al.</i> 2009, Mbachu 2008, Le-Hoai, <i>et al.</i> 2008, Mbachu and Nkando 2007, Faridi and El-Sayegh 2006, Beatham, <i>et al.</i> 2004, Ssegawa, <i>et al.</i> 2002, Hanna, <i>et al.</i> 2002)
Inability to interpret tender construction plans	Baloyi and Bekker (2011), Idoro (2010), Otim, <i>et al.</i> (2011), Oladapo (2007)
Supervision of projects by unqualified project manager	Idoro (2010), Otim, <i>et al.</i> (2011), Oladapo (2007)
Failure to deliver projects on time to the satisfaction the client	Idoro (2010), Otim, <i>et al.</i> (2011), Oladapo (2007), Pheng and Chuan (2005)
Poor relationships between ECs and stakeholders	Baloyi and Bekker (2011); Ssegawa, <i>et al.</i> , (2002); Hanna, <i>et al.</i> (2002)
Inability to produce works of an acceptable standard	The item was derived from the fact that service providers in the construction industry must meet the expectations and requirements of clients in the delivery of projects to create and retain satisfied clients (Marx, 2012; Kotler and Keller, 2005; Mbachu and Nkado, 2007).
Poor information flow and coordination among primary stakeholders	Baloyi and Bekker (2011), Idoro (2009), Otim, <i>et al.</i> (2011), Oladapo (2007), Pheng and Chuan, (2005)

### 3.5.7 Legal and regulatory scale

The legal and regulatory scale comprises a health and safety analysis, business registration processes as well as government policies on environmental impacts (See Table 3.9, below). Contractors perceive regulations on health and safety, environmental impacts, and business registration as an additional burden with which they have to conform and which gives rise to unnecessary costs (Windapo and Oladapo, 2012). The key informants showed that compliance with the OHSWA regulations is costly and they seemed ignorant of legal and regulatory strictures that govern their businesses, such as on health and safety.

**Table 3.9: Legal and regulatory determinant scale**

<b>Scale Items</b>	<b>Identified related Author</b>
High safety training costs	Windapo and Oladapo (2012), Emuze (2011), Kheni, <i>et al.</i> (2010)
High safety induction costs	Sidumedi (2009), Emuze (2011), Windapo (2011)
High costs on medical requirements	Hapanova, <i>et al.</i> (2006), Windapo and Oladapo (2012), Kheni, <i>et al.</i> (2010)
High costs on personal protection requirements	Windapo and Oladapo (2012), Emuze (2011), Windapo (2011), Kheni, <i>et al.</i> (2010)
Expensive first aid requirements	Emuze, (2011) Windapo (2011), Kheni, <i>et al.</i> (2010)
Attitudes of public officials adversely affect business performance.	Hapanova, <i>et al.</i> , (2006), Sidumedi (2009), Greyling (2012), Coolidge and Ilic (2009)
Cumbersome registration requirements and stringent government procedures.	Greyling (2012), Coolidge and Ilic (2009), Emuze (2011), Windapo (2011), Windapo and Oladapo (2012)
Government policies in the construction industry do not promote ECs.	This item was based on government policies that ECs are required to comply with Greyling (2012)
The grading policies in the construction industry are prohibitive for business growth and access to market	This item was adapted from Greying (2012) who noted that concerns were raised regarding the grading system, which many feel excludes emerging contractor from participating in larger tenders.

### **3.5.8 Strategic planning**

The key informants indicated that ECs did not engage in systematic business planning, which in a small business is often done on an ad hoc, problem-solving basis and frequently on the owner's mental activity. He or she usually relies on advice from family members and friends who may also lack skill and experience. Against this background, measurement items for this section were made as indicated in Table 3.10 (below):

**Table 3.10: Strategic planning scale**

Scale Items	Identified related Author
Attention given to long term vision	Warszawski (1996); Thompson and Strickland (2005), Adendorff, Appels and Botha, (2011); Porter (1990); O'Regan and Ghobadian (2004); Robinson, (1982).
Attention given to business objectives	
Attention given to management practices	
Attention given to strategic planning	
Attention given to stakeholders' interest	

### 3.5.9 Business performance scale

Subjective performance measures were used in this study in order to gauge the personal evaluation of SBEs on their personal judgements of how their businesses were performing. Performance was measured by the following items as shown in Table 3.11 (below):

**Table 3.11: Project performance scale**

Scale Items	Identified author
Comparing recent and previous sales	Yang, <i>et al.</i> , (2010); Sillars, (2010); CIDB register
Sales stability over the last three years	
Profitability	
Sales growth compared to competitors	
Owner satisfaction	
Market share growth	

### 3.5.10 Project performance scale

Qualitative performance indicators were used to assess project performance because it was assumed SBEs would not be keen to disclose their projects' performance quantitatively.

For example, showing changes in the amount of revenue generated was a challenge for respondents to disclose. Qualitative measures were appropriate as they had the potential for measuring the behaviour of workers, for example, and other stakeholders on a project site. Project performance was measured by the items as shown in Table 3.12 (below):

**Table 3.12: Project performance scale**

Indicators	Identified related Author
Order book size	Mbachu, (2012); Mbachu and Nkhado, (2007); Narver and Slater (1990); Marx (2012); Ofori, (2006); Palaneeswaran and Kumaraswamy, (2006); Hauptfleisch, <i>et al.</i> (2007).
Productivity of work force	
Quality of completed projects	
Completion time	
Project cost management	
Utilization of resources	
Operational control of the project	
Client satisfaction	
Client overall confidence	

### 3.5.11 Business performance improvement scale

The last section of the instrument (F) provided questionnaire items in which respondents were asked to highlight their recommendations to improve EC business performance in Gauteng. The final question in this section was open-ended, whereby respondents had an opportunity to provide information that might not have been addressed by the instrument but which could be useful to the study.

## 3.6 PILOT STUDY

Before the administration of the instruments to the sampled key informants and respondents, a pilot survey was administered to two key informants (SBEs) in case of the interview guide, and 15 respondents (SBEs) for a questionnaire as representatives of ECs.

This was done to check the instruments to ensure the face and content validity in terms of assessing the degree to which a construct had been accurately translated into an operationalisation (Hua *et al.*, 2007).

SBEs representing ECs in the sample were contacted through email addresses as provided in the database. The questionnaire was accompanied by a covering letter (Appendix A) that explained the purpose of the study to the SBEs. General instructions on completing the questionnaire and the importance of completing all questions were included. Confidentiality of responses was assured. Contact details were provided on the covering letter, offering the business owner the opportunity to contact the researcher in the event of any queries or problems that might arise. The covering letter requested the SBE return the completed questionnaire via email. Two weeks after the initial email, a follow-up email was sent, reminding the respondents of the study. However, irrespective of the motivation letter, the response rate achieved from the email strategy was very low since communication was restricted to the questionnaire and the covering letter. This indicated that executives did not answer such a long questionnaire on an email, hence, the strategy was dropped.

Structured telephonic interviews were conducted with the sampled respondents, considered appropriate since a detailed contact list of all respondents had been provided by CIDB with correct telephone numbers. However, the statements and performance indicators were too numerous to obtain a good response. After at least 20 questions of that kind, some respondents shut down and did not want to cooperate any further. Comments such as, *“Sorry I don’t have time to go through your formal questionnaire but the above may find more relevance”* were received. The response rate was low, indicating that the telephonic strategy alone would not be effective for this study and the face-to-face strategy was then introduced to augment the telephonic strategy.

Respondents were able to ask the interviewer questions for clarity, and their valuable comments were used to revise the research instruments. The second pilot test was then resent to the respondents, and based on the feedback minor amendments were made to the instruments to remove any ambiguities and discrepancies. The comments received were positive and no major changes were made. This was carried out to ensure the clarity and relevance of the instruments.

### **3.7 DATA COLLECTION PROCEDURE (QUANTITATIVE DATA)**

The CIDB management provided contact information, including email addresses, telephone numbers and physical addresses for the Grade 2 ECs in Gauteng. The contact person whose name appeared on the CIDB database was telephoned to make an appointment to interview the chief executive of the business. A letter explaining the purpose of the study (Appendix A) was forwarded to the contact person by way of electronic mail and tele-fax. Follow up was made to confirm the receipt of the letter and also to establish when the interview would be obtained. Also, a letter of identification was obtained from the Graduate School of Business Leadership of Unisa (Appendix G) and the CIDB, which served to confirm to the respondents that the study was for academic purposes. An approval letter to use the CIDB database was received to conduct the study on registered contractors (Appendix E).

After the approval was obtained, the researcher and assistant researchers visited the business. Some executives preferred to be interviewed by telephone and interviews were conducted as such. The purpose of the study and the statement of voluntary participation were explained to the executive and verbal informed consent obtained from each interviewee prior to conducting the interviews. However, it was not simple as the chief executive in some cases was very busy or not available. In such cases, other executives in the population under study, such as financial executives, marketing executives and contract executives, were interviewed. The data was collected using both telephonic and face-to-face interviews as a way of optimising the response rate. According to Bowling (2005: 286), face-to-face interviews are under certain circumstances a more suitable method of data collection than the alternatives, such as electronic and self-completed questionnaires. However, face-to-face interviews placed a large burden on the budget as the researcher and research assistants had to drive around Gauteng conducting interviews.

Four interviewers were recruited, trained, briefed and assigned to the City of Tshwane, City of Johannesburg, Ekurhuleni, West Rand and Sedibeng metropolitan Cities as individuals. The interviewers were unemployed graduates who carried out the interviews during the months of August to December 2013. Interviews were conducted in the respondent's workplaces to ensure each participant's comfort. All interviews were conducted under the consistent supervision of the researcher. A minimum of 25% back-checking on each interviewer's work was conducted to ensure accuracy and consistency, to

prevent falsification of information and to verify sampling accuracy. Interviewers clarified the questions for respondents if they were requested to do so.

### **3.8 ANALYTICAL TECHNIQUES OF QUANTITATIVE DATA ANALYSIS**

A number of techniques were employed in quantitative data analysis.

#### **3.8.1 Descriptive statistics**

Descriptive statistics were used to tabulate the demographic profile of the respondents and business profile. The data analysis was conducted using *STATA* version 12. To assess and validate the questionnaire as a tool to measure ECs' performance, Item Analysis of Questionnaire was done using Cronbach alpha.

#### **3.8.2 Reliability**

The questionnaire had subscales designed to measure the various factors that were hypothesised as affecting EC performance. As the responses of different SBEs would be used to draw conclusions about their businesses' performance, the subscales were to have good reliability and validity. Reliability in this case was assessed through internal consistency of the subscales. Coefficient alpha (Cronbach's Alpha) gave an estimate of the reliability of the scale, i.e., the proportion of the total variance in the scale scores that was not the result of random errors in measurement (Bryman and Bell, 2007). The subscales were also tested for validity, thus the extent to which they successfully measured the construct. Item analysis was used to clean up the subscales, item by item, in order to maximise reliability and validity. The process in *STATA* version 12 involved four steps:

1. Descriptive analysis to establish how evenly distributed were subjects' responses among the response choices;
2. Inter-correlation and item-total correlation analysis to check how well an item was correlated with other items in the subscale and with the total score of the subscale excluding the item itself;

3. Cronbach's alpha calculation, which assessed whether an item contributed to subscale internal consistency, such that Cronbach's alpha decreased when the item was omitted, and its removal did not increase Cronbach's alpha;
4. The last two steps were repeated without the item which met the criteria to be dropped.

After item analysis only the good items were retained in each subscale for further analysis.

### **3.8.3 Validity of the measuring instrument**

It was important to ensure the instruments used in this study were valid, that is an instrument measures what it is intended to measure, while reliability is concerned with the ability of an instrument to measure consistently (Bassioni *et al.* 2008: 29). Although the reliability of an instrument is closely associated with its validity an instrument cannot be valid unless it is also reliable.

### **3.8.4 Content validity of the instrument**

Content validity of the construct was established by developing scale items that depicted the hypothesised seven components of performance determinants based on the perceptions of the six key informants. After the development of the instrument, the scale items were given to the key informants who rated the scale for consistency with ECs business performance, and additional items were recommended for inclusion. The items that were considered to have high consistency with EC business performance were included in the instrument. Content validity was also demonstrated by reviewing previous studies in the subject area and examining the phenomenon from different theoretical perspectives and disciplines. The evaluation of the instruments in the pilot study also ensured that the instrument provided adequate coverage of the topic by pilot testing the instruments.

### **3.8.5 Construct validity of the instrument**

Construct validity was ensured by using confirmatory factor analysis to explore individual survey items that contributed to an overall construct measurement. Some of the questionnaire items were adapted from existing instruments used in similar studies. Criterion-related validity which measures whether the instrument accurately predicts (predictive validity - the degree to which scores or test predict later behaviour) or diagnoses (concurrent validity-refers to the correlation between scores on a scale and scores on another scale or measure of established validity given at about the same time). Concurrent and predictive validity are often referred together as ‘criterion related validity’.

### **3.8.6 Regression analysis**

To assess the perceived determinants of EC performance (Project and business) in Gauteng, *STATA* version 12 was used to carry out univariate analysis and multiple regression analysis, the benefits of which included its ability to provide descriptive statistics, cross-tabulation, frequencies, prediction for numerical outcomes and prediction for identifying groups, and factor analysis. Univariate analysis was conducted to identify the perceived factors that significantly affect EC performance. Also, Multiple linear regressions of the various hypothesised predictors against the outcome variable, EC performance was carried out in order to control for any potential confounders and to come up with a linear model that related all the significant factors to the outcome, EC performance. This was in line with Hair *et al.* (2006), who state that before conducting a multiple regression analysis to assess the relationships between the variables the number of factors and items loading onto each must be known. Post-estimation diagnostic tests were also carried out after the model was fitted. Where appropriate, correlation analysis and the chi-square test of association were used to investigate relationships between variables.

## **3.9 CONTROL OF BIAS**

Triangulation was used in both collection and analyses of data in order to come up with synthesised results. Most information in this thesis is drawn from archival data, that is, materials from government publications (CIDB quarterly and annual reviews), journals

and articles, press reports and online documents. Primary data from structured questionnaire with construction SBEs complemented these sources. The rationale behind triangulation was that it helped overcome deficiencies inherent in one method (Denzin and Lincoln, 2008), serving as a strategy for increasing the validity of research findings (Mathison, 1988:13). This made it possible to check results from more than one viewpoint and to view situations from a different angle. Patton (2002) advocates the use of triangulation as it strengthens a study by combining methods. The four forms of triangulation proposed by Denzin (2008) were used:

1. **Data Triangulation:** In this study the SBEs and archival data were utilised to gather data primary and secondary data respectively. This enabled different data sets to be collected at different times.
2. **Investigator triangulation:** The researcher and research assistance were participants in data collection for the study.
3. **Theoretical triangulation:** Many theoretical frameworks from strategic management, construction management and project management were used in interpreting data.
4. **Methodological triangulation:** The study incorporated more than one method whereby both quantitative and qualitative approaches were used. Specifically, face-to-face interviews were conducted, with a critical incident technique also used.

### **3.10 ETHICAL CONSIDERATIONS OF THE STUDY**

Ethical issues relating to the validity of the research, harms and benefits, confidentiality and anonymity were considered. In order to ensure that respondents were not harmed or suffered adverse consequences from the research activities, all gave verbal consent to participate in this study. No individuals became a subject of this research unless he or she had given informed consent to participate. There was no pressure or inducement of any kind applied to encourage participation in this research. Verbal consent was obtained from all respondents and written consent avoided because in some situations it frightened the respondents. They were informed about the purpose of the research, the length of participation, potential benefits and harms and communication of the results of the study.

Participation in this study did not expose participants to an invasion of their privacy and their anonymity was and shall be maintained. Everything that was learnt about participants during their involvement in the study was maintained in the strictest confidence. Participants were not placed in any danger as they were protected from physical harm, discomfort, pain, embarrassment and work-related harm. This was ensured by keeping strictly confidential the identity of SBEs from whom information was obtained. At the end of the research, any information that revealed the identity of the respondents was destroyed, unless the individual concerned had consented in writing to its inclusion beforehand. No information revealing the identity of any individual was included in the final report or in any other communication prepared in the course of the research.

### **3.11 CHAPTER CONCLUSION**

This chapter has provided a perspective on the research design, the mixed method approach, population, sample size and its selection, research instruments and how they were constructed. The pilot study as well as data collection method were described, including procedures followed in data analysis. Validity and reliability as well as elimination of bias and ethical considerations were dealt with in this chapter.

The next chapter presents the empirical findings of the study.

## **CHAPTER FOUR**

### **PRESENTATION OF EMPIRICAL FINDINGS**

#### **4.1 CHAPTER INTRODUCTION**

This chapter presents the empirical findings from the interviews conducted with the Small Business Executives (SBEs) in the construction industry and the results are presented in two Parts (A to B). The critical incident technique (CIT) was used to identify various incidents encountered by SBEs in the industry, which were then analysed to reveal broader patterns. The advantage of using CIT was that it helped to identify new factors that could have been potentially missed by other inquiry methods. Based on the in-depth interviews conducted, the research questions were addressed.

#### **4.2 PART A - QUALITATIVE RESULTS**

Qualitative data were obtained from the open-ended questions as reflected in the interview guide (Appendix B). The responses recorded are presented in this section.

##### **4.2.1 Profile of key informants**

In order to understand the incidents that were encountered by the SBEs in the construction industry, a total of six SBEs were interviewed. However, it should be stated that some of the respondents were reluctant to disclose full information for fear of victimisation. The profile of the key informants was assessed and the results indicated 17% of the respondents were female, participants had an average age of 44 years, and 83% were blacks. No disability status was reported. The highest level of formal education ranged from no matrix 33%, matrix 50% to diploma level 17%. They were builders, concrete reinforcers and general contractors. The profile of the key informants are summarised in Table 4.1 (below):

**Table 4.1: Profile of key informants**

Study area	Responses received					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
Gender	Female	Male	Male	Male	Male	Male
Age Group	58 years	61 years	28 years	46 years	38 years	34 years
Ethnic group	Black	Black	Black	White	Black	Black
Disability	None	None	None	None	None	None
Qualification	No matric	No matric	Matric	Matric	Teaching Diploma	Matric
Profession	Builder	Builder	Reinforcement	Builder & Reinforcement	General Contractor	Builder & Reinforcement
Functional role	CEO	Owner	Contract Manager	Owner	Managing Director	Owner
Province	Gauteng	Gauteng	Gauteng	Gauteng	Gauteng	Gauteng
No. of Years	2 years	2 years	3 years	1 years	3 years	3 years
CIDB Grading	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2
Company size	35 unskilled	45 unskilled 2 Skilled	1 Skilled 15 Unskilled	2 foremen, 52 unskilled	15 Unskilled	12 brick 24 labourers
Business Profile	Male and Female	Male	Male	Male	Male	Male
Service provided	CE	GB	CE & GB	CE & GB	CE & GB	GB
Construction projects	Govt. and Private	Gvt. and Private	Gvt. and Private	Gvt. and Private	Gvt. and Private	Gvt. And Private

**Legend:** GB-General Building, CE-Civil Engineering, CEO-Chief Executive Officer, Gvt – Government

#### 4.2.2 Analysis of the findings

Based on the interviews conducted with key informants, the key findings of qualitative results are summarised by the various thematic areas identified. From the six executives interviewed, seven thematic areas emerged:

1. Finance
2. People Management
3. Material, Machinery and Equipment
4. Project Implementation
5. Quality

## 6. Legal and Regulatory

## 7. Strategic Planning

Tables 4.2 to 4.8 summarise the recorded incidents and determinants in tabular format. They helped to identify common incidents that had impacted on ECs' performance. Column 1 represents the determinant category while columns 2 to 7 represent the incidents recorded as extracted from interview scripts of Contractors A, B, C, D, E and F.

### **4.2.2.1 Finance**

The first theme that emerged from the respondents related to financial incidents (see Table 4.2). The incidents and determinants identified by the respondents related to the following.

#### *4.2.2.1.1 Lack of access to finance from financial institutions*

There were concerns raised by the respondents regarding access to finance from financial institutions. All SBEs felt excluded from participating in the construction sector as they could not bid for projects without adequate financial support. The perception by the respondents was that banks were reluctant to deal with ECs due to their poor credit rating (Contractor A, B, C, D, E and F) and that they charged exorbitant interest rates. Contractor A could not raise capital through the bank: *“When I presented my problem of borrowing money to the bank, my credit history was required. My collateral position was required; I did not have any collateral and had no credit history and the bank could not extend a loan to me.”*

**Table 4.2: Summarised results on finance**

	<b>Recorded Incidents and Determinants</b>					
<b>Category</b>	<b>Contractor A</b>	<b>Contractor B</b>	<b>Contractor C</b>	<b>Contractor D</b>	<b>Contractor E</b>	<b>Contractor F</b>
<b>Finance</b>	<ul style="list-style-type: none"> <li>No payment for sorting and cutting steel on site, but paid employees for extra work done.</li> <li>Not given a site instruction to make a claim for extra work done.</li> <li>Late payment of claims by main contractor due to late payment by client.</li> <li>Cash flow problems.</li> <li>Paid employee wages from own savings.</li> <li>Was paid half of the amount so as not to stop working.</li> <li>Very small profit margin realised from this job.</li> <li>Accepted low bidding price to get the job.</li> <li>Lost the retention due to project abandonment.</li> </ul>	<ul style="list-style-type: none"> <li>Did not have collateral and assets required by the banks.</li> <li>Did not get advance payment from main contractor.</li> <li>Borrowed money from non-financial sources.</li> <li>Got assistance from family members and friends.</li> <li>Incurred financial cost, i.e. payment of employees to go for medicals.</li> <li>Some employees failed medical examinations.</li> <li>Incurred unplanned costs which required extra funding.</li> <li>Monthly claims for completed work were paid late.</li> <li>Stopped working waiting for payment.</li> </ul>	<ul style="list-style-type: none"> <li>No payment for sorting and cutting steel on site, but paid employees for extra work done.</li> <li>Not given a site instruction to make a claim for extra work done.</li> <li>Late payment of claims by main contractor due to late payment by client.</li> <li>Cash flow problems.</li> <li>Paid employee wages from own savings.</li> <li>Was paid half of the amount so as not to stop working.</li> <li>Very small profit margin realised from this job.</li> <li>Accepted low bidding price to get the job.</li> <li>Lost the retention due to project abandonment.</li> </ul>	<ul style="list-style-type: none"> <li>Late payment</li> <li>Lost the retention money (estimated at R300 000) and all outstanding money due to project abandonment.</li> <li>Cash flow problem</li> <li>Failed to pay wages creating problems with employees.</li> <li>Failed to pay suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Bank wanted cash upfront or an form of security in order to issue a guarantee</li> <li>Client refused to make upfront payment</li> <li>Paid for the work done however, failed to manage cash flow.</li> <li>No budget for the project and no record kept for the project.</li> <li>Late payment</li> <li>Used cash available to finance other projects.</li> <li>Financial and emotional hardships.</li> </ul>	<ul style="list-style-type: none"> <li>Failed to secure funding from bank</li> <li>Poor credit rating.</li> <li>Bank guarantee required.</li> <li>Did not have any collateral.</li> <li>Competition for the job</li> <li>Cut price to secure the contract</li> <li>Got assistance from family members and friends</li> <li>Borrowed funds could not meet the salary bill</li> <li>Employees went for weeks without wages</li> <li>Late payment</li> <li>Lost key employees.</li> <li>Deduction of retention affected my cash flow.</li> <li>No proper record kept to track on business transactions</li> </ul>

#### 4.2.2.1.2 Lack of collateral security

Among the key informants interviewed, it was found that lack of financial planning and collateral played a negative role in the performance of ECs businesses as they entered into construction work without adequate capital. As such, SBEs perceived lack of own capital to execute projects as a hindrance to secure tenders (Contractors A, B, C, D, E and F). For example, Contractor E said: *“The client wanted a guarantee from me and I approached my bankers for assistance. However, the bank wanted me to have an equivalent of cash that would be ceded to the bank. I did not have any cash available in my account. The bank turned me down.”*

It was found that SBEs used non-banking facilities as a source of finance to hire tools, equipment and machinery used in construction work (Contractors A, B and F). Contractor A said: *“A certain amount of deposit was required before I took the machinery that included the Bulldozer, the Front-end Loader, Bomag Roller and the Excavators that I used for bulk excavation. I did not have the money required by the hiring company. My cash flow was very weak. I utilised the small reserves that I had to raise the deposit required. Apart from the machinery, I was required to buy the gravel and hire the tipping trucks. My cash flow became very tight and the bank did not assist and neither the main contractor to make upfront payment.”*

#### 4.2.2.1.3 Poor recordkeeping and poor cash flow management

The respondents reported poor cash flow management, which often left them short of funds during construction projects and argued that poor cash flow compromised their business growth and profitability. Poor recordkeeping was highlighted by Contractors E and F, who had no financial records for their projects. Although contractor E received payment from the client he failed to manage cash flow properly, resulting in his failure to pay employees. Similarly, Contractor D had problems to keep business records: *“I did not have a proper system to keep my company records (construction drawings, invoices, orders and payment record) because I did not have a personal assistant who could keep these records.”*

On the other hand, Contractor F indicated that he did not have a budget for the project but was expected to comply with health and safety requirements: *“I did not have money to pay for employees’ medical examinations and had to incur unplanned extra costs for health and safety requirements.”*

#### *4.2.2.1.4 Late payments of completed work, non-payment of rework and no advance payment*

All respondents, Contractors A, B, C, D, E and F reported incidents of late payments by their clients. It was found that ECs were paid beyond the time stipulated in the conditions of their contracts and perceived late payment as a major factor in the relatively weak performance of their businesses. There were diverse reasons given for the late payments, with some key informants citing deliberate late payment by clients, unfair withholding of payment, and/or a ‘pay when paid’ attitude in the industry. For example, Contractor D said: *“I submitted my claims at the end of every month as agreed. Unfortunately, my claims were not paid on time. I had to stop my employees working so that the main contractor could feel the effect of his actions and this created misunderstandings on site.”* In the case of Contractor D, the main contractor had cash flow and financial difficulties from the beginning, which were not known to subcontractors as this site was eventually abandoned.

The study found that at times SBEs were paid on time, however, funds from particular projects were diverted towards non-business related activities, resulting in failure to pay wages and salaries. Contractor E reported: *“When I got my first payment from the client, I used the money for other things which were critical in my life as well as consumables for other projects. I did not do cost analysis properly. After a fortnight, I failed to pay my employees and had problems with them.”* This resulted in the project being halted while Contractor E was resolving wages and salaries with employees. Contractor E further confirmed that his relations with the main contractor were negatively affected as a result of this incident.

#### *4.2.2.1.5 Payment of performance guarantee / retention*

The study found that payment of performance guarantees or deduction of retention is commonly practiced in the industry, despite affecting the cash flow of ECs. Contractor D said: *“Whenever, I received payment from the main contractor, an amount equivalent to ten percent had been deducted as retention. At the time we negotiated the contract, I tried without success to lower the retention amount to a more reasonable percentage as this has a serious impact on my cash flows.”* This shows that clients retained 5% to 10% (CIDB, 2013) of each progress payment until certified completion of the project, which had a negative impact on cash flows of ECs. Contractor D worked for a large construction company building a mall in Pretoria, with deductions of retention made on the understanding that retention would be paid out when the project was completed. After a year, there were claims between the client and the main contractor which resulted in the project being abandoned and Contractor D lost a large amount as a result. Contractor C reported misunderstandings with the main contractor that led him to abandon the project and lost retention money, while Contractor F failed to recover retention money due to non-compliance with health and safety requirements.

#### *4.2.2.1.6 Low bidding price / unrealistic tender price*

The study found that low prices were used when bidding for projects, in order to secure tenders. SBEs reported that this was the case when demand of work was large and small contractors were chasing the same work. All SBEs agreed that pricing a project too low affected the survival of the businesses and resulted in insufficient profits to the company. For example, Contractor C reported: *“The profit margin for this job a police station was very small. The price that I accepted on that tender was very low and this was due to competition and had to go for low prices in order to secure the job.”*

#### **4.2.2.2 People management**

The other theme that emerged from the interviews was around human resources management. Respondents were asked about people management in project implementation and it was found that projects were affected by labour issues relating to

shortage of skilled manpower, strikes and industrial action, cumbersome labour processes, failure to award increments and pay wages on time, requirement to employ locals due to community demands and lack of cooperation from main contractor. The results of this theme are summarised in Table 4.3 (below).

The key informants reported lack of skills and knowledgeable labour force in the construction industry as affecting project implementation. Contractor E reported an incident in which he needed to work on a special foundation which had steel specifications. The foundation did not pass as he did not have skills to fix reinforcing steel. All his employees were unskilled labourers with little formal education or an inability to read the construction drawings, hence the contractor required assistance from skilled people. The same sentiments that employees lacked formal qualifications, appropriate skills and competencies were echoed by Contractor B and F. If employees lack qualifications it becomes difficult to train them to read construction drawings as required in the industry. It was found that ECs instead hired immigrant labour to assist (Contractors B, E and F).

The key informants (Contractors A, B, C, D, E and F) perceived industrial action, such as striking, as having a negative impact on project implementation as it causes delays on construction sites. The perception is that labour unrest and too many meetings with unions result in delays and low labour productivity. Due to labour unrest, all SBEs confirmed that industrial action erupted while their construction projects were in progress, affecting businesses as the construction sites had to be closed for some weeks while employees were engaged in industrial action and demonstrations. However, Contractor D confirmed that a 'no work no pay' principle was applied when employees embarked on industrial action. The demands for workers related to decent work, living wage, quality jobs, improved basic conditions of work and calling for a ban on the practice of labour broking. Figure 4.1 (below) shows a group of employees who participated in an industrial action in 2011, as described by contractors A to F.

**Figure 4.1: Industrial action**



**Source:**<http://africanarguments.org/2011/12/02/industrial-action-south-africa-in-2012>

There is a perception among key informants that stringent labour laws have an impact on people management and employee productivity. Contractor B reported an incident in which an employee who had stolen a generator and a grinder on site could not be dismissed instantly due to a lengthy hearing process.

**Table 4.3: Summary of results on manpower**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Manpower</b>	<ul style="list-style-type: none"> <li>• Employees not motivated</li> <li>• Poor payment of wages</li> <li>• Employees worried about employment security</li> <li>• Low labour productivity</li> <li>• Low employee morale</li> <li>• Skills shortages in the industry</li> <li>• Underpayment of wages and salaries</li> <li>• Failed to give employees wage increments</li> </ul>	<ul style="list-style-type: none"> <li>• Labour misunderstanding and unrest.</li> <li>• Lost many production days due to industrial strike</li> <li>• Employed foreigners</li> <li>• Skills shortages in the industry</li> <li>• Xenophobic violence.</li> <li>• Demand for minimum wages</li> <li>• Standardized pay rates, training program for local employees.</li> <li>• No budget allocation for new demands.</li> <li>• Employee unrests</li> </ul>	<ul style="list-style-type: none"> <li>• Employees accused of low productivity by main contractor.</li> <li>• Employees worked under fear of victimisation.</li> <li>• Accused bringing few people to site</li> <li>• Shortage of formwork material</li> <li>• Failed to complete decks due to formwork problems</li> <li>• Poor production</li> <li>• Unrealistic scope of work</li> <li>• Failure to meet concrete pour dates.</li> <li>• No site instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Employees not paid wages and salaries when they participated in strikes because of the no-work-no-pay-principle.</li> <li>• No record of wages kept showing the impact of strike.</li> <li>• Employee low morale</li> <li>• Non-payment from the main contractor.</li> <li>• None payment of employees' wages and salaries</li> <li>• Lack of employee trust and poor working relationships.</li> <li>• Employees demanded higher wages</li> </ul>	<ul style="list-style-type: none"> <li>• Employee dissatisfaction</li> <li>• Non-payment of wages and salaries</li> <li>• Lacked commitment on the project.</li> <li>• Employment potential of fifteen jobs</li> <li>• Low productivity.</li> <li>• Poor Supervision</li> <li>• Shortage of skilled supervisors</li> <li>• Employees lacked appropriate skills and competence.</li> <li>• Use of foreign labour</li> </ul>	<ul style="list-style-type: none"> <li>• Skilled and competent supervisor not successful on medical grounds.</li> <li>• New supervisor not productive.</li> <li>• Non-payment of wages and salaries</li> <li>• Paid employee medical certificates, training, and safety file.</li> <li>• Employee morale went down</li> <li>• poor performance, Low productivity; high absenteeism, bad time keeping, high labour turnover</li> </ul>

		<p>and remobilization on site.</p> <ul style="list-style-type: none"> <li>• Management and supervision of employees</li> </ul> <p>Meetings with the employees and unions to resolve the stalemate on site.</p>	<p>received</p> <ul style="list-style-type: none"> <li>• Non-payment from the client</li> <li>• Had to pay employees wages and salaries</li> </ul>	<ul style="list-style-type: none"> <li>• Project abandoned</li> <li>• Non-payment of employees and creditors</li> <li>• Poor reputation</li> <li>• Employees lost employment.</li> </ul>		<ul style="list-style-type: none"> <li>• Reputation suffered.</li> <li>• Used cheap labour.</li> <li>• labour courts for failing to pay wages and salaries.</li> </ul>
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#### *4.2.2.2.1 Failure to award increments and pay wages on time*

The respondents confirmed that employees were not paid on time and when paid they received average earnings, thus feeling the wages received were lower than the inflation rate. This was confirmed by Contractors A, D and E, which led employees to become demotivated as they continued demanding higher wages. Contractor F said: *“When I failed to pay my employees’ fortnightly wage, employee morale went down, poor performance was experienced, low productivity, high absenteeism, and bad time keeping and high labour turnover were some noticeable experiences within my contract.”* Eventually, Contractor F was taken to a labour court by employees over salaries and wages which had not been paid. While the effect and impact of industrial action were widely reported by the SBEs, poor working conditions were noted as having a negative effect on project implementation. Contractor E said: *“..... all fifteen of my employees wanted to kill me. They wanted wages and I did not have anything as I had already used the money somewhere.”* This incident confirms that ECs do not adequately pay employees in the industry and they in turn would stop working causing the projects to be delayed. In this case, employees left the contractor and sought other employment.

#### *4.2.2.2.2 Requirement to employ community locals*

There is a negative perception that the recruitment of community labour and the requirement damages business capabilities when unskilled labour is recruited. The following statement bear testimony to this, when Contractor B was affected by labour issues in the middle of the project implementation: *“To my surprise, after two weeks, the contracts manager at the Hospital told me to recruit 50% of local people into my contract, as this was a requirement from the local councillor representing the community. All subcontractors were required to comply with this request.”*

#### *4.2.2.2.3 Lack of cooperation from main contractor*

Respondents reported unplanned increase in the scope of work from the client due to late starting of the project and rescheduling, which results in lack of cooperation between main contractor and subcontractors. This was confirmed by Contractor C who claimed that he

was victimised by the contract manager that his steel fixers delayed the project, yet his team could not proceed without appropriate scaffolding being erected. This incident shows that at times projects are not started on time, resulting in undue pressure being exacted on subcontractors. In this case, Contractor C had to wait for other subcontractors to complete their areas, whilst the main contractor felt it was delaying the project therefore it perceived unrealistic demands and poor supervision by contract management as an impediment towards the growth and profitability of ECs.

#### ***4.2.2.3 Material, machinery and equipment***

Respondents confirmed that ECs are affected by material supply, excessive waste of material during the application process, loss of material on site due to damage or theft, deterioration of materials due to inappropriate storage, non-conformance of material to specification, poor quality equipment and breakdowns (see Table 4.4, below).

##### ***4.2.2.3.1 Oversupply of material not required on site***

It emerged from Contractor C that main contractors put pressure on subcontractors to request unnecessary material due to poor material planning. Out of fear of victimisation, Contractor C ordered reinforcing steel that was not required on the construction site at the initial stage of the project, *“I was summoned to the manager’s office in Tembisa and forced to place orders for ground floor slab with the supplier and the columns to first floor. My argument was simple, I wanted to order steel in stages so that the steel would not get mixed and retain production tags. There was very limited space on the construction site in Tembisa and ordering unnecessary material would result in wastage.”* This incident shows lack of planning on the procurement and usage of material on site, thus, failure in effective planning of material by the main contractor caused material over supply.

**Table 4.4: Summary of results on material, equipment and machinery**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Material, equipment, machinery</b>	<ul style="list-style-type: none"> <li>• Breakdown of my front end loader and truck.</li> <li>• Poor estimation of gravel and cement</li> <li>• Shortage material</li> <li>• Underutilisation of machinery</li> <li>• Lacked cash to buy consumables, diesel and oil.</li> <li>• Poor storage facilities</li> <li>• Cement and tools such as angle grinders, shovels and drillers being stolen.</li> <li>• Material left in the open space for some time and some bags of cement got damaged.</li> <li>• Cement deteriorated and lost conformance</li> </ul>	<ul style="list-style-type: none"> <li>• Bricks and plaster sand supplied by the main contractor arrived late.</li> <li>• Poor usage of building material</li> <li>• Shortage of cement and plaster sand</li> <li>• Contractor complained of thick plastering.</li> <li>• Employees left concrete mortar to harden before usage on site.</li> <li>• Received a claim for wasting material on site.</li> <li>• Cement stolen due to poor security.</li> <li>• Bags of cement opened left half full and cement lost conformance.</li> <li>• Damaged property due to industrial</li> </ul>	<ul style="list-style-type: none"> <li>• Ordering of reinforcing steel poorly done.</li> <li>• 20 tons of steel stolen on site</li> <li>• Material mixed up and could not be used</li> <li>• 60 tons valued at R480 000 scrapped</li> <li>• Regular shortages of steel experienced</li> <li>• Production tags missing</li> <li>• Steel fixers cut steel on site without a site instruction</li> <li>• Steel got rusted on site and scraped</li> <li>• Excessive splicing annoyed the engineer</li> <li>• Crane breakdown</li> <li>• Poor crane allocation</li> </ul>	<ul style="list-style-type: none"> <li>• Poor quality material supplied</li> <li>• Erratic supplies of material</li> <li>• Bricks did not conform to specifications</li> <li>• Unnecessary delays due to late delivery of bricks</li> <li>• Poor quality bricks ordered</li> <li>• Work stoppages as a result of industrial action.</li> <li>• Failed to pay creditors for brick cutter, concrete mixer, ladders bought on credit</li> <li>• My reputation</li> </ul>	<ul style="list-style-type: none"> <li>• Wrong material ordered</li> <li>• Material deteriorated due to inappropriate storage.</li> <li>• Material got damaged</li> <li>• Failed to account for the material</li> <li>• Project not completed on time due to poor estimations and financial planning.</li> <li>• Too much wastage of material.</li> <li>• Employees lacked technical expertise.</li> <li>• Regular shortages of cement and bricks.</li> <li>• Excessive wastage and pilferage of cement.</li> <li>• Damaged bags of</li> </ul>	<ul style="list-style-type: none"> <li>• Bricks, sand and cement provided by main contractor.</li> <li>• Employees lacked technical knowhow</li> <li>• Employees failed to read the drawings and knowledge on typical specifications</li> <li>• Excessive waste of cement, sand and bricks.</li> <li>• Corrected plastering before inspection.</li> <li>• Excessive generation of half bricks.</li> <li>• Shortages of cement, sand and brick on site.</li> <li>• Charged by the main contractor for</li> </ul>

	<ul style="list-style-type: none"> <li>• Poor site management</li> <li>• Poor security on site</li> <li>• Bags of cement stolen due to collusion between my employees and security personnel</li> </ul>	<p>action</p> <ul style="list-style-type: none"> <li>• Door frames, window frames stolen as a result of industrial strike.</li> </ul>	<ul style="list-style-type: none"> <li>• Used crane at break times and knocking off time</li> <li>• Site management challenges</li> <li>• Bribery and corruption activities on site</li> </ul>	<p>affected</p> <ul style="list-style-type: none"> <li>• Unreliable overhead crane</li> <li>• Regular breakdowns</li> <li>• Site management problems</li> </ul>	<p>cement, left open without proper storage.</p> <ul style="list-style-type: none"> <li>• Same order purchased several times</li> <li>• Lacked technical knowhow on quantity surveying</li> </ul>	<p>excessive use of cement</p> <ul style="list-style-type: none"> <li>• Charged for leaving mortar on site unused.</li> </ul>
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Evidence of the wrong material being ordered and delivered on construction sites was common among key informants. The structures were not passed in the case of contractor B and resulted in unnecessary costly rework. Contractor E failed to properly reinforce the house and the foundation was not passed by the municipality. Contractor D reported that: *“When I started using the bricks, the engineer came and inspected the work. He noted that the bricks that I used were ordinary bricks instead of load bearing bricks. All the bricks were condemned. The main contractor had to re-order the bricks. I lost a couple of days waiting for the correct bricks to arrive.”* The issue of excess bags of cement and material non-conformance was echoed by Contractors A, C, E and F, demonstrating poor procurement system of material by main contractors, and this has an impact on the performance of ECs. Consequently, loss of material on site due to damage and theft was widely reported by the respondents, citing amongst other factors poor security on construction sites, material being stolen due to collusion by employees and security guards, and deterioration of materials due to inappropriate storage (A and E). On the same project, Contractor D reported shortages of cement on site and problems relating to the supply and fixing of reinforcing steel, which support evidence by Contractor C who abandoned a project before its completion as a result of misunderstandings on site. ECs perceive poor site management and planning as having an impact on the growth and profitability of businesses.

It was noted that if the company did not have a certified scaffolding team, outsourcing of such service was important if the hired supplier provided services according to the main contractor’s specifications and needs. Failure to comply resulted in delays and health and safety related problems. This is evidenced by contractor D, who reported that *“On several occasions, the main contractor failed to provide scaffolding on time because the employees were not competent and not certified to do scaffolding. The scaffolding team failed to provide access to my employees on time. The effect was that I had to stop my employees working waiting for the access to be provided. Such delays cost my company money and I paid employees who were not productive.”*

The above incidents are evidence of poor site management which was attributed to lack of necessary experience, skill and knowledge in managing a project and material planning by the respondents.

Another issue raised by key informants related to breakdown of equipment and machinery, which impedes the progress of work. Contractor A was affected by the breakdown of tipping trucks and front-end loaders which were obsolete, as it did not have funds to adequately maintain the machinery. The contractor found it difficult to procure materials such as gravel and cement to carry out work, so eventually it hired machinery in order to execute the project. As the credit record was weak, the contractor battled to secure adequate funds to hire machinery. The same sentiments about breakdowns of equipment were expressed by Contractors C and D, who were affected by crane availability due to breakdowns.

#### ***4.2.2.4 Project implementation***

Apart from financial and manpower factors, a number of factors related to project implementation emerged, notably weather conditions, liquidation of the main contractor, project delay, and lack of detailed information on construction drawings. Table 4.5 (below) summarises results obtained from project implementation.

##### ***4.2.2.4.1 Weather conditions***

Almost all the respondents confirmed that weather conditions affected the performance of their businesses. It was reported that heavy rains caused delays in project implementation and deliveries of material as construction sites became waterlogged and too wet for delivery trucks. For example, Contractor A was seriously affected by major rain for two weeks, leading to major delays on the civil work he was doing.

**Table 4.5: Summary of results on project implementation**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Project implementation</b>	<ul style="list-style-type: none"> <li>• Worked under pressure to catch up with the programme.</li> <li>• Delays, non-payment of bills gravel, cement, tipping trucks.</li> <li>• Suppliers requested cash up front.</li> <li>• Heavy rain caused major delays to the project.</li> <li>• Dewatering problems</li> </ul>	<ul style="list-style-type: none"> <li>• Delays due to labour problems</li> <li>• Disruptions due to Labour unions</li> <li>• Delayed project</li> <li>• Poor management of labour relations on site</li> <li>• Employees' demands disrupted the programme.</li> <li>• Absenteeism</li> <li>• Low productivity of employees.</li> <li>• Incurred extra costs for overtime, transport and paid unplanned meals.</li> </ul>	<ul style="list-style-type: none"> <li>• Formwork team did not have sufficient material for the deck</li> <li>• Insufficient time given to work on a deck</li> <li>• Threatened with claim for cancelling concrete</li> <li>• Received a claim of R30 000 for failing to meet the targets.</li> <li>• Unrealistic scope of work</li> <li>• Confusion and misunderstanding among subcontractor.</li> </ul>	<ul style="list-style-type: none"> <li>• Delays as a result of health and safety issues</li> <li>• Delays as a result of poor supply of material</li> <li>• Delays as a result of scaffolding erection</li> <li>• Delays as a result of drawing change</li> <li>• Delays as a result of weather conditions</li> <li>• Delays as a result of late payments</li> <li>• Delays as a result of industrial strikes</li> <li>• Project abandoned</li> <li>• Arbitrations and Litigations</li> </ul>	<ul style="list-style-type: none"> <li>• Project delayed for three months.</li> <li>• Delays due to lack of commitment.</li> <li>• Poor supply of labour</li> <li>• Failed to pay employees.</li> <li>• Low productivity and employees left site</li> <li>• Poor project management and supervision</li> <li>• No control of material and labour.</li> <li>• Contract manager failed to identify critical areas of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Failed to bring sufficient employees to site</li> <li>• Poor employee working conditions</li> <li>• Employees always late, absent from work and low productivity</li> <li>• Complaints from the main contractor regarding delays.</li> <li>• Received claims as a result of delays.</li> <li>• Employees worked over time to complete the deck</li> </ul>

#### 4.2.2.4.2 Liquidation of main contractor

Contractor D reported an incident in which the main contractor experienced financial difficulties with the client, a problem not disclosed to subcontractors. As a result, Contractor D and other subcontractors continued working on a project not knowing what was happening between the main contractor and the client. The construction site was closed without prior warning to subcontractors. Figure 4.2 (below) shows the mall in which Contractor D allegedly lost large sums of money in the form of completed work that had not been paid for, as well as the retention money of the main contractor. Construction of the mall was abandoned as a result of disputes and litigation between the main contractor and the client.

**Figure 4.2: Abandoned mall as a result of liquidation**



Source: [www.preform.co.za/hire\\_contracting](http://www.preform.co.za/hire_contracting)

#### 4.2.2.4.3 Project delay

Key informants perceived project delays as having a negative effect on business performance, and the following delays were reported:

- Late payments and non-payment of material (A; B, C, D, E and F)

- Delays due to weather (A, D)
- Delays due to industrial strikes (A, B, D, F)
- Poor supply of labour and non-payment of wages (E, F)
- Low productivity resulting in claims (B, C, E, F)
- Delays due to poor supply of material e.g. cement, formwork (A, B, C, D, E, F)
- Delays due to poor implementation of health and safety requirements (A, B, C, D)
- Delays due to changes in construction drawings (B and D)
- Unplanned increase in the scope of work from the client due to late starting of the project and rescheduling.
- Delays due to lack of commitment (E)
- Failure to identify critical project activities (E)

Owing to delays, ECs failed to execute projects within the set quality, time and budgets. The key informants argued that ECs thus failed to complete work within the contract period, resulting in claims being levelled against them by main contractor.

#### *4.2.2.4.4 Lack of detailed information on construction drawings*

The key informants reported the use of wrong construction drawings as well as drawings that contained errors and omissions that affected performance on project execution. This resulted in rework due to wrong drawings being used and created payment problems with main contractors as a result of re-work (B; D; E). Respondents confirmed that they worked on the basis of the information provided in the construction and architectural drawings and any change to these after work had been done caused delays and rework, which became costly to the client. Contractor D said: *“I picked many errors and omissions involving measurements and quantities of bricks from the drawing that I brought to the attention of the main contractor. The construction drawings were changed as a result of these omissions. The main contractor forwarded the queries to the engineer and this took a couple of days before a new revision was issued. My employees stopped working and this affected my productivity and profitability.”* The use of wrong drawings was echoed by Contractors (E and F) who argued that there was a lack of technical knowledge on the quality of construction drawings.

#### 4.2.2.5 *Quality of work*

The perceptions of the respondents were checked on the quality of work and respondents argued that the use of non-conforming material, use of wrong drawings from main contractor, inability to produce work of an acceptable standard and employment of community labour had an impact on quality of structures. The results of this theme are summarised in Table 4.6 (below). On employment of community labour, for example, respondents argued that it contributed to poor quality as they took shortcuts which disrupted quality standards. The shortcuts taken by community labour as found in this study included wrong measurements taken, insufficient amount of cement and sand used, which contributed to poor quality of construction performance and disrupted quality standards. Contractor B said, *“There is inconsistent quality owing to prioritisation of employing community labour.”* Another issue that affected quality, as highlighted by Contractors B, D and E, related to the use of wrong bricks as ordered by the main contractor and poor planning of reinforcing material on site.

There was a perception about carelessness, shortcuts and poor workmanship which key informants believed affected the quality of structures in the industry. Contractor E said: *“I fixed the problem but already the quality had been affected as I had to demolish the foundation and fix the stirrups and extra bars that had been excluded as well as correcting the fixing centres.”* Contractor B reported that: *“.... Engineers noticed some defects which were attributed to the use of non-load bearing bricks instead of load bearing bricks specified on the construction drawing.”*

The other response received was that at times authorities did check on project progress late and that affected the quality of structures. The late inspection of a project could be attributed to the shortage of skills in the country, as South Africa has been noted to experience shortage of skilled and competent labour force.

**Table 4.6: Summarised results on quality of work**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Quality</b>	<ul style="list-style-type: none"> <li>Quality compromised</li> <li>Challenges to meet deadlines</li> <li>Poor workmanship</li> <li>Reputation suffered</li> <li>Required to employ local people</li> <li>Aware that high quality achieved would ensure my future marketability and enhances the confidence of clients on my work.</li> </ul>	<ul style="list-style-type: none"> <li>Quality systems disrupted resulting in poor quality work.</li> <li>Forced to employ local employees who lacked skills and knowledge about construction</li> <li>Visible Defects emerged</li> <li>Employees taking short corners</li> <li>Employment of community people created problems.</li> </ul>	<ul style="list-style-type: none"> <li>Lacked supervision on steel fixing</li> <li>No one checked on the quality of work.</li> <li>Steel was cut on site.</li> <li>Too much splicing of reinforcing steel.</li> <li>Used wrong drawing</li> <li>Did not charge him for using wrong drawing.</li> <li>Rework done and no payment received.</li> </ul>	<ul style="list-style-type: none"> <li>Project abandoned</li> <li>Demolitions.</li> <li>Reinforcing steel rusted.</li> <li>Cut steel on site and this created shortages.</li> <li>Breaking the slab to allow splicing of reinforcing steel.</li> <li>Lots of wastage of material experienced</li> </ul>	<ul style="list-style-type: none"> <li>Reinforcing steel not properly fixed</li> <li>Lacked technical knowledge on construction drawings and bending schedules.</li> <li>Too many errors that annoyed the engineer and the client.</li> <li>Too much splicing.</li> <li>Unnecessary demolishing because of non-conformance.</li> <li>Rework and</li> <li>Foundation cracking</li> </ul>	<ul style="list-style-type: none"> <li>Client not happy with the quality of my work</li> <li>Employees not competent on bricklaying.</li> <li>Checked and corrected many mistakes.</li> <li>Too much rework and no payment received</li> <li>Demolished the structure and take corrective active before inspection.</li> <li>Wastage of bricks, sand and cement.</li> </ul>

#### 4.2.2.6 Legal and regulatory Incidents

Table 4.7 (below) summarises the results from legal and regulatory theme.

**Table 4.7: Summarised results on legal and regulatory**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Legal And Regulatory</b>	<ul style="list-style-type: none"> <li>Failed to understand the terms and conditions of contract.</li> <li>Lacked in-depth of the contract</li> <li>Employees did not have PPE.</li> <li>Failed to comply with health and safety requirements</li> </ul>	<ul style="list-style-type: none"> <li>Resolved disputes between unions and employees at CCMA</li> <li>Poor communication of health and safety requirements.</li> <li>Health and safety problems had an impact on profitability of the business</li> </ul>	<ul style="list-style-type: none"> <li>Health and safety requirements not adhered to on site</li> <li>No safety meetings held on site</li> <li>Received a claim for failing to meet targets.</li> <li>Threatened with legal action.</li> <li>Lost retention money</li> <li>Failed to take legal battles with large companies</li> </ul>	<ul style="list-style-type: none"> <li>Could not afford to pursue the case with the main contractor</li> <li>Did not keep a record of the agreement</li> <li>Taken to labour court by the employees demanding wages</li> <li>Sold assets in order to settle debts</li> </ul>	<ul style="list-style-type: none"> <li>Taken to labour court by employees</li> <li>Client took me to his lawyers</li> <li>Did not comply with safety requirements.</li> <li>Employees did not have safety PPE</li> <li>No safety meeting held on site</li> </ul>	<ul style="list-style-type: none"> <li>R100 000 required to address safety requirements.</li> <li>Safety budget not incorporated in the initial quote</li> <li>Unaware of safety requirements</li> <li>No chance given to resolve health and safety issues</li> <li>Taken to labour court by employee</li> </ul>

When respondents were asked about legal and regulatory factors, almost all key informants confirmed poor interpretation of contract terms in line with JBCC and conditions which resulted in them failing to comply with contractual provisions and conditions. Contractors A, D and E confirmed their failure to understand the terms and conditions of contracts signed. Contractors C, D and E received claims for failing to meet targets and quality standards. SBEs entered into construction contracts without full knowledge of their rights and obligations, not being familiar with the conditions of contracting and thus causing breaches and result in project delays. In some cases, SBEs did not keep a record of the contracts signed and when problems arose they panicked and claimed ignorance of events. The following quotable statement testifies: *“I received the tender documents from the client that I signed. Unfortunately, I never kept the documents and never studied the terms and conditions of the contract.”* (Contractor D).

Another statement by Contractor A with similar sentiments was: *“The other condition that I accepted without a clear idea about the implication was to accept dry rates which were cheaper (where I would buy diesel and oil for the machinery to operate); the rates for wet rates were high however I would not buy diesel and oil. I did not think about the implication of the difference”*. These statements show that SBEs had limited in-depth knowledge on their responsibilities, liabilities and procedural clauses on contractual contracts. According to CIDB, FIDIC and JBCC, contractors were expected to enter into contracts that they fully understood.

#### *4.2.2.6.1 Health and safety requirements*

In almost all projects it was established that clients had a list of health and safety requirements that were given to the main contractor to comply with, including: Mandatory Appointment / Agreement Ac 37.2, Principal Contractor appoints Contractor, Contractor Chief Executive Officer (16.1) appoints Company Assignee responsible for Health and Safety on Site, Assignee appoints Competent Construction Supervisor, Assignee appoints Assistant Competent Construction Supervisor, Assignee appoints Construction Safety Officer, Assignee appoints Risk Assessor, Assignee appoints Fall Protection Planner, Assignee appoints First Aider (+ 10 people). It was found, however, that the health and safety standards on sites were not encouraging as SBEs were not fully aware as to what it

took to comply with them. Whilst this may not be important for small projects, such as building a house, it does however become important when ECs engage in large projects. Contractor F said: *“The health and safety compliance at a construction site was regularly checked and it was always noted that there was no compliance on site. It was further observed that housekeeping rarely done on this site. The site was declared disastrous and was always asked to clean the site.”* Similar sentiments were echoed by Contractor F, who showed ignorance of health and safety requirements when he was awarded a tender to construct office blocks in Midrand: *“All subcontractors on this site were given a week to comply with health and safety requirements. I did not know how to handle these issues; this was something very new to me.”*

The above incidents show that even though emerging contractors eventually made significant effort to comply, the action was taken without full knowledge of the costs involved or the time it takes to comply with health and safety requirements. While these should not be compromised, the cost of compliance is unaffordable to the ECs.

#### **4.2.2.7 Strategic planning**

One of the main themes that emerged from the interviews was the strategies used to acquire construction projects and the owner’s ability to market their businesses. Acquisition of construction projects was neither planned nor defined, and without a strategic acquisition plan the methods used might be ineffective (see Table 4.8, below).

For example, the following statements bear testimony to the way SBEs secure a construction project without proper strategic planning: *“In year 2011, I was subcontracted by one big company that was building a hospital based on my talking to the boss of the main contractor. My work involved bricklaying and plastering.”* (Contractor B). *“I was awarded a contract by a major company in Midrand based on referral from a friend to build office blocks as a subcontractor. This was my first contract to work for big construction companies. Prior to this contract, I used to build residential houses in the Township of Voslorus, Tsakane and KwaTema.”* (Contractor F). None of the key informants interviewed had a clearly defined strategic acquisition plan in place on how to find customers, strategies on how to get to know them or how to grow and retain them in the most efficient and effective way. This demonstrates weaknesses in leadership support

and strategic planning which are essential for the success and improvement of any business.

**Table 4.8: Summarised results on strategic planning**

Category	Recorded incidents and determinants					
	Contractor A	Contractor B	Contractor C	Contractor D	Contractor E	Contractor F
<b>Strategic planning</b>	<ul style="list-style-type: none"> <li>• Sought advice from skilled and knowledgeable people in the industry.</li> <li>• Did not have a plan as to how the project should be implemented.</li> <li>• Did not have set targets for the project</li> <li>• Poor project scheduling</li> </ul>	<ul style="list-style-type: none"> <li>• Did not have set targets that I could give to employees.</li> <li>• Work activities disrupted when forced to employee people who lacked knowledge.</li> <li>• Employed people who had no skills of the industry.</li> <li>• Spent time on one project</li> </ul>	<ul style="list-style-type: none"> <li>• Did not have work targets.</li> <li>• Did not communicate plans to supervisors</li> <li>• No systems to check productivity on</li> <li>• Poor material planning and scheduling</li> <li>• No forecast</li> <li>• No clearly defined objectives for the business</li> </ul>	<ul style="list-style-type: none"> <li>• Short term objective</li> <li>• Focused on a particular job worked on</li> <li>• Aimed to ensure client got the best performance from my team</li> <li>• Did not have a project plan</li> </ul>	<ul style="list-style-type: none"> <li>• Poor project planning</li> <li>• Concentrated on too many projects which I failed to control</li> <li>• Aimed to complete the project and make money if I can</li> <li>• Did not have objectives</li> <li>• Paid attention to the projects on hand</li> </ul>	<ul style="list-style-type: none"> <li>• No focus on long term direction of the business</li> <li>• Spent most of my time and energy on this project</li> <li>• Paid attention to one project</li> <li>• Had no projects to work on when the project was completed</li> <li>• No projects to sustain my business.</li> </ul>

### 4.2.3 Critical incidents identified

From the thematic areas discussed above, the following determinants and critical incidents that had an impact on the performance of ECs are summarised in Table 4.9 (below). The analyses has demonstrated that financial factors, manpower, materials, machinery and equipment, project implementation, quality of work, legal and environmental and strategic planning are the main determinants that should be addressed when setting up and running construction businesses, so as to reduce the negative impact on business performance. The results show that the performance of ECs is based on the actions of various constituents, including the client, consultant, contractor organisation and government agencies. Again, the performance of ECs relies on the capabilities of SBEs in planning and management of bottlenecks in the construction processes. The following are key issues found from the qualitative results that should be addressed when deciding on ECs' performance base as they will affect negatively on business performance.

**Table 4.9: Summary of critical incidents identified**

<b>Financial Category</b>	<b>Manpower Category</b>
Lack of collateral and assets due to poor credit ratings	Shortage of experienced and competent labour force
Late payments towards completed work by clients	High rate of labour disputes and strikes
Poor cash flow management and budget control	Cumbersome administrative tasks, such as UIF, workmen's compensation, skills development levy.
Tender pricing pressure from main contractor	Low labour productivity due to employee dissatisfaction and absenteeism
High consultancy costs and fees e.g. ,accountants and architects erode profits	The skills obtained from higher education and the skills required in the construction industry do not match
High registration and annual renewal fees	Poor labour supervision and workmanship
Payment of performance guarantee / retention	Little capacity to deal with the complexities of modern projects

Payment problems experienced as a result of rework relating to faults (e.g., <i>project design errors, formwork errors, plumbing errors, mechanical and electrical works faults</i> ).	Contractors, subcontractors, clients and consultants do not work together as a project team
<b>Materials / Equipment Category</b>	<b>Project Implementation Category</b>
Lack of technical knowhow on quantity surveying of construction material	Poor planning techniques and failure to identify critical activities
Regular shortages of materials on site	Lack of project coordination among contractors, subcontractors, clients and consultants
Excessive waste of material during the application process (e.g. unnecessarily thick plastering)	Unplanned increase in the scope of work from the client
Non-conformance of material to specification	Unrealistic construction planned time by clients
Loss of material on site due to damage or theft.	Failure to commence project on time due to main contractor delays
Deterioration of materials due to inappropriate storage	Omissions in the construction plans
Loss of material on site due to damage or theft	Time spent waiting for samples, materials approval, site inspection; approval of quality control tests and results
Poor quality of equipment	
<b>Quality Category</b>	<b>Legal and Environmental Category</b>
Architectural drawings lack adequate technical information	Compliance with health and safety regulations is a hindrance to small scale construction enterprises performance relative to:
Inability to interpret construction tender plans	<i>High costs on medical requirements</i>
Supervision of projects by unqualified project managers	<i>High costs on personal protection requirements</i>
Failure to deliver projects on time to the satisfaction of the client	<i>Expensive first aid requirements</i>
Poor relationships between Small businesses and stakeholders	Cumbersome registration requirements and stringent government and private support systems
Inability to produce works of an acceptable standard	Government policies in the construction industry do not promote small scale construction enterprises

Poor information flow and coordination between Small businesses and stakeholders	The grading system in the construction industry
<b>Strategic Planning Category</b>	
Attention to long term vision	
Lack of clear objectives	
Weak leadership / management practices	
Little attention is given to Strategic planning	
Limited work opportunities for emerging contractors / high competition	

**Source:** From Findings of the Field Research (2014)

#### **4.2.4 Impact of the critical incidents on business performance**

Based on the themes discussed above, the impact of the incidents on business performance was examined, including both financial impact and non-financial impact.

##### ***4.2.4.1 Late payment***

Delayed payments in the case of Contractors C, D and F who stopped working whilst awaiting payment for completed work had serious implications for business performance. The impact of late payment on ECs created a shortage of financial resources to meet immediate business obligations (payment of suppliers and wages and salaries), stifling business growth, restricting employment opportunities and inhibiting innovation and efficiency. Respondents complained that withholding their money was bad because it gave the main contractor an opportunity to use money which they needed to pay for the materials, labour salaries and equipment required for the construction work.

##### ***4.2.4.2 Payment of performance guarantee / cash retention***

Respondents complained that the practice of retention against their businesses as an insurance against defects emerging from construction had a negative impact on business

cash flow. Retention damaged cash flow and reduced the chances of investing that money, prohibiting them from employing competent people.

#### ***4.2.4.3 Poor workmanship***

The effect of poor workmanship was noted as unnecessary demolitions in the case of Contractor E. The contractor had to repeat the work, which resulted in unnecessary cost overruns, including the foundation or which appropriate reinforcing steel had to be provided.

#### ***4.2.4.4 Reckless project bidding***

The practice by SBEs of bidding for projects at very low prices in order to secure contracts was counter-productive as pricing too low results in poor margins and jeopardises the growth of the business. In other studies, insufficient profits have contributed to financial difficulties of the emerging contractors (Ali, *et al.* 2010). It is appropriate, therefore, for any business to attain accepted mark-ups that would make the business profitable and enable its survival in the construction industry.

#### ***4.2.4.5 High rate of labour disputes and strikes***

Most employees working for different contractors A, B, C, D, E and F were dissatisfied with the working conditions. Poor people management and working conditions, including low wages and salaries, long working hours, poor relationship and compromised decent working conditions were noted. The level of employee dissatisfaction in the construction industry is high, as evidenced by high rate of labour disputes and strikes. When employees were not happy with work this contributed to low morale in a work environment and labour disputes, strikes, low labour productivity, and financial loss. Contractor B reported: *“I lost many productive days attending to labour issues; there were many stoppages on site as a result of misunderstandings among employees which I had to attend to. The demonstrations and strikes lasted for almost two weeks. This became a heavy expense to my small construction company.”*

A similar incident that resulted in a costly dispute was reported by Contractor C, who reported that: *“Due to the fact that profit margins were very low, I could not increase the wages of my employees and this created misunderstandings with employees as they demanded a decent wage.”* Furthermore, failure by ECs to pay wages and salaries on time contributed to labour disputes and employee dissatisfaction. Contractor B reported labour-related disputes that were resolved at CCMA level: *“This was the best way to resolve labour disputes between contractors, unions and employees.”*

On another incident, Contractor D reported an incident in which the main contractor ran into cash flow problems while the project was in progress. It was taken to a labour court by employees who demanded wages and to resolve the problem, and sold personal property. As a small business, Contractor D could not afford to take the main contractor to court and had no record of the contract entered into with the main contractor. Disputes which were not resolved amicably on site were resolved through arbitration processes that involved CCMA in some cases. The lengthy labour processes affected employee productivity, profitability and reputation of the business. Weak communication among primary stakeholders, contractors, subcontractors, clients and consultants meant they could not work together as a project team.

#### ***4.2.4.6 Shortage of experienced and competent labour force***

There is poor training of employees in the construction industry, particularly within the emerging contractors in CIDB Grade 2, and low level of skills and experiences, as evidenced by Contractor E, who worked with unskilled employees at a project. Lack of skilled labour may result in poor labour supervision, poor workmanship, little capacity to deal complex modern projects and high training costs. Contractor C reported these problems as he lost large sums of money having to pay employees for unnecessary overtime, standing time, cutting steel on site and sorting reinforcing steel that had been mixed up. The above discussion shows manpower challenges that should be addressed when setting up and running a business to reduce the negative impact on business performance.

#### ***4.2.4.7 Supply of material, equipment and machinery***

Poor materials management in project implementation was noted, which led into material shortages in the case of brick supply and oversupply of reinforcing steel. Shortages resulted in project delays, while oversupply led to wastage of resources, as in the case of Contractor C who received large tonnages of reinforcing steel on site. There were cases of reinforcing steel that was stolen on site and steel that was wasted through cutting and unnecessary processing on site.

SBEs do not have adequate tools and equipment to use in the construction site as most of the equipment is old and some acquired through leasing. There were cases of equipment and machinery breakdown and some remaining idle on sites, which indicated lack of planning. The impact of this was causing delays in the case of Contractor D, who complained about the breakdown of the overhead crane and in the process lost a week's work. This shows that servicing of equipment was not carried out on time but only when there was a problem.

#### ***4.2.4.8 Project implementation***

Project performance is key to the organisation's performance. The positive and negative effects of incidents experienced by SBEs in project execution affect the overall performance of business. The observed effects related to time overrun, cost overrun, quality, disputes, arbitration, project abandonment, project delay, employment creation, and business planning.

#### ***4.2.4.9 Time overrun***

The majority of respondents reported delayed projects, caused by contractors, subcontractors and other parties, resulting in time overruns. Some delays were inexcusable, such as inadequate scheduling, project mismanagement and underestimation of scope of work. There were identified weaknesses in project and material planning, improper site management, and failure to delegate construction activities to subordinates and to appoint subcontractors. There was inadequate project handling experience in the

case of Contractor E, who eventually failed to complete the construction of a house in a suburb. The projects were not delivered according to scheduled programme and in the case of Contractor D, *“The community did not receive delivery of the project as planned and this created anger within community residents.”* These incidents directly affected completion of the project.

#### **4.2.4.10 Cost overrun**

According to Contractor C, *“My company incurred financial losses as a result of poor site management from the main contractor, my employees lost many hours of productive time sorting out reinforcing steel and I was forced to bring many people on site which I paid for coming to site and do nothing”*. Such incidents of wrong material ordered, late deliveries, material theft, poor workmanship (mistakes and carelessness), errors and omissions in construction drawings, and misunderstanding among parties, resulted in cost overrun which in turn had a negative impact on the growth and profitability of the business. Poor storage of material, such as cement that lost its conformity on site, was noted and this contributed to cost overrun. Health and safety requirements were identified, causing cost overrun (Contractor C and E). The requirements became costly to small contractors as SBEs did not include the cost in the bidding price.

#### **4.2.4.11 Project abandonment**

The site was closed without prior warning or payment for completed work, hence Contractor D abandoned the project before it was completed. Similarly, Contractor C abandoned the construction of a police station before it was completed because of poor relationships and misunderstandings on sites which remained unresolved. Contractor E abandoned the construction of a house because the quality of work was poor, which resulted in unnecessary demolition and reworking. This was a result of poor project and material planning, poor labour management, poor financial management and overall failure to perform.

The above incidents reveal project implementation issues that should be addressed when setting up a business to reduce the negative impact on performance. The issues raised are

key when deciding on project implementation base as they will impact negatively on overall business performance.

#### ***4.2.4.12 Quality***

Incidents reported by SBEs have shown poor workmanship, unnecessary demolitions and defective works which require rectification. This was demonstrated by most SBEs who reported that poor quality of structures damaged their reputation in the industry. Poor control over staff on site and poor site management by the main contractors were noted as major causes of poor quality of structures. Contractor B said: *“My quality control systems were affected due to the employment of local employees resulting in remedial work produced and unnecessary demolishing and redoing of work.”* Rework affected Contractor B’s financial capabilities. Poor quality had an impact on profitability and growth of Contractor B’s business performance. SBEs interpret the drawings based on limited information and this led them into a situation in which their work was redone because in some cases measurements had been incorrectly taken. In some cases SBEs were not paid for rework, which spilt into business profitability.

#### ***4.2.4.13 Legal and regulatory impact***

While literature has shown that health and safety is currently receiving growing attention in the construction industry (e.g., Windapo and Oladapo, 2012; Small and Haupt, 2007), non-compliance still poses a risk to employees. SBEs perceive the requirements as unnecessary project costs which are not sufficiently priced in the bills of quantity, and are frustrating and cumbersome. They were also a hindrance to ECs’ performance, owing to high safety training costs; high safety induction costs; high costs on medical requirements; high costs on personal protection requirements and expensive first aid requirements.

#### ***4.2.4.14 Strategic management in emerging contractor companies***

It was found that most of the ECs engage in short-term operational planning as opposed to long-term strategic issues. The respondents did not demonstrate the extent of their strategic

planning and strategic choices had benefited an organisation, which shows no sign of strategic direction on the part of SBEs. There were no incidents of strategies such as acquisitions, partnerships, joint ventures and diversification from contracting to maintenance, indicating lack of strategic thinking and leadership that could not turn around emerging contractors into viable businesses. Respondents were concerned about immediate projects and lacked business-specific forward planning. There was lack of long-term vision among ECs surveyed for the strategic direction of their operations. The impact lack of strategic planning has on the businesses of ECs is evident in acquisition of projects, reckless bidding, lack of understanding of business conditions, poor project planning and implementation, poor quality and poor people management.

The above results display lack of vision within ECs and strategic planning should be addressed when setting up and running a construction business to reduce the negative impact on business performance. There is lack of leadership, forecasting and planning among the ECs, and these are the most important skills and knowledge for success in delivering general construction work. The critical success factors of a business are based on its mission and the support derived from top management and the awareness of client needs. The following key strategic issues become important when deciding on strategic planning base as they will impact negatively on business performance.

- Attention to long term vision
- Lack of clear objectives
- Weak management practices
- Little attention given to Strategic planning
- Little attention given to stakeholders' interest.

#### **4.2.5 Overall business and stakeholder performance**

The overall effect of the incidents on business performance was assessed and the respondents reported performances relating to business profitability, business planning and order book size.

- **Business profitability**

Low business profit margins were noted among all emerging contractors surveyed. Contractor A reported lower than anticipated profitability, attributed to poor financial management whereby costs were not properly contained. Contractor B attributed reduced profitability to health and safety requirements which arose while the project was underway, and this affected the cost benefit analysis of the project. Contractor C compared sales growth to the previous year and reported reduced growth as a result of the reported incident which had an impact on the overall business profitability: *“When I checked the finances for this project, I noticed that this project had been financed by funds that came from my previous projects.”* When Contractor C compared his business performance to colleagues, his sales growth had gone down drastically. This was echoed by Contractor D: *“the sales projections that I had envisaged when I started the job were never achieved. Excessive costs were incurred that affected the profitability of my business such delays caused by non-payment of completed work. Eventually, I abandoned the project.”* It was also experienced by Contractor F: *“The margins were very low as I went at very low prices, I accepted low prices because I thought by working on volumes would be able to make money.”* This contractor attributed the low margins to the bidding prices as well as the health and safety requirements which had not been budgeted for.

- **Poor order book size**

Contractor C was involved in the construction of a police station, and when he abandoned the project there were no new orders in the order book. Much attention had been paid to the construction of the police station and much time lost on strategic planning of the business. Furthermore, the contractor had lost most of the contacts in business since *“I could not interact with them most of the time. Most of my time was absorbed into this project and little attention was given to other stakeholders such as potential clients.”* Similarly, Contractor F had a low order book when he completed the construction of the office block: *“I had concentrated too much on this project and never paid attention to the future of the company.”*

- **The stakeholder**

Despite being key to the business success, the results of this study suggest that ECs do not value the stakeholders who support and promote their business. From the perspective of the SBEs, central to their performance are key result areas highlighted below.

- **Employment creation performance**

Whilst ECs are regarded as instrumental in employment creation and the contractors have the potential to employ more people it remains stagnant. Contractor D reported an incident of 54 employees losing their jobs because the contractor was not paid for the completed work and eventually the site was closed. This shows how emerging contractors failed to contribute to the government objective about employment creation. Contractor F reported an incident in which skilled and competent employees were lost due to labour disputes relating to non-payment of wages, while Contractor F could not find assistance from the banks or the main contractor and had to retrench employees. Contractor E reported problems in producing quality structures and could not complete the projects in which he was involved. Thus, all employees working for this contractor lost employment because of the SBE's poor project planning, lack of commitment and focus. Thus, community expectation that employment would be generated was not realised. Also, the government objective that small contractors generated employment was not achieved.

- **Business owner Satisfaction**

The success of a business is considered when, apart from the business making profit, the owner is happy. Regarding business owner satisfaction, Contractor F reported that: *“As the main member of the company I never enjoyed the fruits of owning a company. Instead, my reserves were drained into this project and there were no returns received.”* The comment made by Contractor F demonstrates lack of business owner satisfaction, attributable to lack of planning and business focus. Generally, the owner of the business prefers to see success of the business in terms of both financial and non-financial outcomes. A business that does not make profits would not bring any financial support to the owner and that business

would not provide employment for the owner or the community at large. Further, the owner would be concerned about the long-term continuity of the business.

- **Client satisfaction**

SBEs do not understand their customers' needs and lack the capacity and capabilities to meet them. Contractor E was involved in the construction of houses and the clients were not satisfied with the quality of his work, and eventually this business closed and the contractor left the industry to pursue other professions. This demonstrates that if clients are dissatisfied with the services of a supplier they do not support that business and as a result it is likely to break down. Therefore, customer management among ECs should focus on finding the right customers, knowing the customers' needs, growing their value and retaining their business in the most efficient and effective way.

- **Community satisfaction**

There is negative social impact caused by delays in the delivery of construction projects. Contractor C was involved in the construction of a police station and failed to deliver the project on time, eventually abandoning it due to misunderstanding relating to material planning. The company therefore did not deliver excellent work from the community perception because the project was abandoned before completion. The community was despondent as this project formed part of service delivery requirement.

- **Regulatory and compliance performance**

Contractor F, who engaged in the construction of office blocks, had challenges to meet health and safety requirements as required by OHSAS 18001: *“Throughout the duration of the project, the safety officer was checking on our safety files and complains were always raised that I was not meeting the requirements.”* This shows how SBEs venture into the construction business without the minimum requirements of the business ethos, therefore emerging contractors need a shift in mind-set to become more health and safety conscious and comply with the requirements.

- **CIDB grading**

Business contracting in the construction industry is based on CIDB grading as there is a strong requirement from the government for ECs to grow towards higher grades on the CIDB register of contractors. This helps contractors to acquire jobs that can be manageable within their capacity, failure in which results in underperformance. This aspect has been demonstrated by Contractor D, who was involved in the construction of a shopping mall in Pretoria before the project was abandoned prior to completion. The reputation of the business suffered as he failed to pay employees and suppliers. The contractor lost assets in form of equipment, thus instead of improving his CIDB ratings the company was rated down. Furthermore, this incident demonstrates that emerging contractors work on projects that are too large for their capacity and capabilities, and so cannot fight large companies when involved in legal battles.

#### **4.2.6 Business interview experiences: managerial perspective**

There are significant lessons that have been learnt from SBEs' business experiences, related to the following themes.

##### ***4.2.6.1 Managerial perspective on financial management***

SBEs who perceive access and cost of financing a project and having negative experience in finance usually put in place strict systems to ensure financial controls, while those with positive experience tend to relax in their financial management systems. As a result they face a similar predicament. Those that consistently use low prices to secure tenders than their competitors would produce poor quality projects, resulting in them battling to cover labour, material and plant costs, while those who use correct tender prices settle all project costs, make a profit and subsequently grow their businesses. SBEs who become aware of proper cost benefit analysis and control budgets during the implementation of a project would produce better results while SBEs who do not analyse costs in terms of labour or material purchasing would fail to complete projects and abandon before completion.

#### ***4.2.6.2 Managerial perspective on manpower challenges***

SBEs that lack skills and business knowledge have high staff turnover as a result of low employee morale and cases of rework that were costly to the client. Thus, skilled and knowledgeable SBEs would ensure successful delivery of projects and would be able to run successful businesses, remain competitive and achieve a sustained growth. Those who perceive motivation of employees as unnecessary have low productivity in the construction industry, which results in delays in project delivery, while those who treat their employees with respect and dignity become successful. The people behind organisations are therefore the most important assets. People need to be treated with respect, including paying them salaries and wages that are related to market conditions. Failure to do so create anger and hatred.

SBEs who send their employees for refresher courses (up skilling) cope with new changing technology in the industry while those who do not consider up skilling lack in skills and knowledge. SBEs that have negative experience with manpower put in place strict manpower systems, including hiring labour experts which ensure strict controls, while those with positive experience tend to relax their systems and not be strict in their labour management systems. As a result they face a similar predicament.

#### ***4.2.6.3 Managerial perspective on supply of materials, equipment and machinery***

SBEs that enter into joint ventures with large contractors when they win tenders as they do not have financial resources, machinery and equipment required for implementing the projects, tend to succeed in their businesses, while those who have no strategies falter. Those citing the engagement of professionals, for example, quantity surveyors and accountants, as unnecessary cost have low chances of succeeding in the construction business, and others who engage professional services survive and create a good reputation in the industry.

SBEs who are not aware of project and material planning would fail to coordinate their work activities, resulting in material shortage on site, hence material needed for construction would not be available within the required timeframe. In the absence of a proper and comprehensive construction plan and schedule, construction parties cannot be

informed of or subsequently held accountable for the timing and duration of their planned activities.

#### ***4.2.6.4 Managerial perspective on project implementation***

SBEs engaging in tenders that have various sections over different disciplines that require particular skill, such as electrical and mechanical engineering, and outsource that part of the contract to a subcontractor who specialises in the skill, would succeed in business while those who perform all activities without proper skills and knowledge will fail to deliver quality in that discipline. Skills and knowledge are critical in construction due to their high impact on productivity and performance. Those that do not follow cost leadership strategy and focus strategy in project implementation would battle to meet project cost and produce low quality work, while those who are focused and follow a cost leadership strategy would survive in a competitive environment.

SBEs that become aware of misunderstandings with their main contractors when problems arise will fail to resolve those misunderstandings and have difficulties in delivering projects on time, while those who manage misunderstandings on construction sites would develop appropriate relationships with their stakeholders that would enable them to deliver projects on time and within budgets. The SBEs that are poor in site management and slow in decision making cause delays that affect the whole team and the progress of works.

#### ***4.2.6.5 Managerial perspective on quality***

SBEs that have quality management systems in construction are able to forecast project activities, including analysis of construction methods, coordination of resource requirements, and sequencing of work activities. They monitor and update project plans and reflect on work status, while those without quality management systems deliver structures of low quality. Those that use poor quality materials produce structures that collapse while others who use quality material as per construction drawings produce structures of good quality.

#### ***4.2.6.6 Managerial perspective on legal and regulatory***

Incompetent SBEs who secure tenders on an opportunistic basis encounter problems that include schedule delays, budget overruns, and non-achievement of quality standards. They become involved in a number of claims and litigation while those who follow tender procedures produce quality structures and observe the terms and conditions of the contract. SBEs who do not understand health and safety requirements incur unplanned expenses as they would be required to comply with health and safety requirements and that would drain their limited resources, while those who understand health and safety requirements would comply at the commencement of the project.

#### ***4.2.6.7 Managerial perspective on strategic planning***

SBEs who lack long-term planning and strategic thinking have failing businesses, while conversely, those with long-term plans work towards making their businesses achieve the set goals through appropriate formulation and implementation of strategies. SBEs who lack effective planning of projects will fail to identify critical activities for the project. Almost all SBEs indicated incidents showing their failure to coordinate the stakeholders, which created misunderstanding and poor relationships among stakeholders on site.

In concluding the first phase of the results, the analysis of the qualitative results revealed thematic areas that were most likely to determine the performance of ECs business in CIDB Grade 2 in Gauteng Province:

- Financial Theme
- Manpower Theme
- Material, Machinery and Equipment Theme
- Project implementation
- Quality Theme
- Legal and Regulatory Theme
- Strategic Planning Theme

The impact of the incidents on business performance was assessed and generally all key informants agreed on the following impact: cost overruns, time overruns, project abandonment, disputes, arbitrations, low business profitability, poor business order book size. Overall impact on business and stakeholder performance was assessed and the results revealed low level of employment creation, low business owner satisfaction, dissatisfied clients and community.

#### **4.3 PART B – PRESENTATION OF QUANTITATIVE RESULTS**

The previous section presented the qualitative research findings, with the critical incidents encountered by SBEs in the construction industry identified. Based on the results achieved, seven broad categories of performance determinants were identified and structured into a detailed survey questionnaire which was used to inform the quantitative aspect of the study. This section presents the statement of the findings and the analysis of quantitative data, beginning by presenting the demographic statistics of the research sample and going on to present the findings for each item on the questionnaire. Specifically, Part B addresses the following research questions as articulated in the first chapter:

- What are the perceptions of SBEs on the determinants of performance among the ECs in Gauteng Province of South Africa?
- What relationship exists between project performance and corporate performance?
- What relationship exists between the profiles of ECs and their performance in the industry?
- What are the perceived measures that can be put in place to sustain high performance among ECs?

The correlation between the study variables and business performance is reviewed in this section, with the results of the hypotheses testing for the study.

### 4.3.1 Response rate

A total of 501 ECs were targeted for the interviews and a total of 433 responded, giving a response rate of 86%. The responses of these 433 respondents were analysed. The high response rate was attributed to the combined effects of survey techniques that included face-to-face and telephone interviews.

### 4.3.2 Demographic characteristics of the respondents

A total of 433 respondents were recruited in this study, the demographic characteristics of whom are summarised in Table 4.10 (below):

**Table 4.10: Distribution of respondents by demographic characteristics**

Characteristic		Frequency (%) N = 433
Gender	Male	65
	Female	35
Age (years)	<30	15
	30-49	66
	50+	19
Ethnicity	Black	67
	Indian	12
	White	17
	Coloured	5
Disability Status:	Disabled	8
	Not Disabled	92
Job Experience (years)	<5	12
	5-10	40
	11-20	44
	>20	4
Formal Education:	No formal	13
	Pre-matric	11

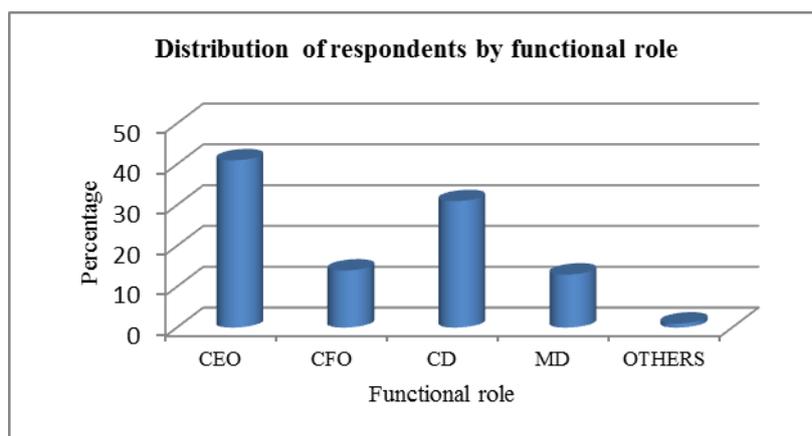
	Matric	32
	Post-matric	27
	Degree	17

The table shows that the majority of the respondents (65%) were males, leaving a significant minority of females (35%). SBEs have played an important role in the construction industry as CEOs, founding members or directors. The age group between 30 and 49 years had the highest response rate at 66%, while blacks were the majority respondents at 67%. Only 8% of the respondents were disabled. In terms of job experience, the majority (84%) confirmed work experience ranging between 5 to 20 years, while 76% had either matric or higher in terms of qualifications.

- **Functional role of SBE**

The functional roles of SBEs were also assessed to determine the key functional roles that they perform in order to enhance business performance. Figure 4.3 (below) summarises the functional roles.

**Figure 4.3: Distributions of respondents by their functional role**



The majority of the respondents were chief executive officers (41%), followed by contract directors at 31%, while other executives had the lowest response rate at 1%.

- **Business profile**

Profile information on the businesses that participated in this study was assessed and reported in this section. The information that emerged from the profile helped in interpreting the results of this study.

- **Business location**

All 433 SBEs were from Gauteng, and their location verified as such.

- **Number of years in construction industry**

Respondents were asked the number of years their businesses had operated in the construction industry. Figure 4.4 (below) shows that 80% of businesses had 2 to 4 years in construction business and had not developed into higher grades. Of significance is 1% of businesses that had been in the industry for 7 years, yet registration with CIDB are still in grade 2 indicating weak growth among some ECs surveyed. This suggests that some ECs do not take advantage of several attempts made by South African government to improve the performance of ECs in the industry. The attempts by the government have been discussed in section 1.2.3 of chapter one.

**Figure 4.4: Years in Construction Industry**



- **CIDB registration grading**

All the emerging contractors that took part in this study were registered with the CIDB in Grade 2, based in Gauteng. Table 4.11 (below) shows representation of respondents who participated:

**Table 4.11: CIDB grading**

Grade	Frequency	Percentage	Cum.
CIDB Grade 2	433	<b>100</b>	<b>100</b>
Total	433	<b>100</b>	

- **Manpower size**

The contractor sizes in terms of manpower by professional skills were assessed and the results are reflected in **Tables 4.12; 4.13 and 4.14**. A majority, 94% of the respondents indicated that they employed 2 or fewer skilled employees and 90% confirmed that they employed 5 to 22 unskilled employees, while 1% employed 29 unskilled employees. Only 10% confirmed that they employed 23 or more employees. The results in table 4.12 show lack of skilled personnel in the industry suggesting need to train existing employees to attain high skills qualifications and recruitment of personnel with a higher profile of skills. This may also suggest that ECs lack appropriate resources to attract necessary competencies and skills from local labour market.

**Table 4.12: Representation of skilled manpower**

Number of skilled	Frequency	Percentage	Cum.
1	170	39	39
2	239	55	94
3	23	5	99
4	1	1	100
Total	433	100	

**Table 4.13: Representation of unskilled manpower**

<b>Number of employees</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum</b>
5-10	116	26	26
11-16	165	39	64
17-22	106	25	90
23-28	40	9	99
29 +	6	1	100
Total	433	100	

**Table 4.14: Representation of skilled and unskilled**

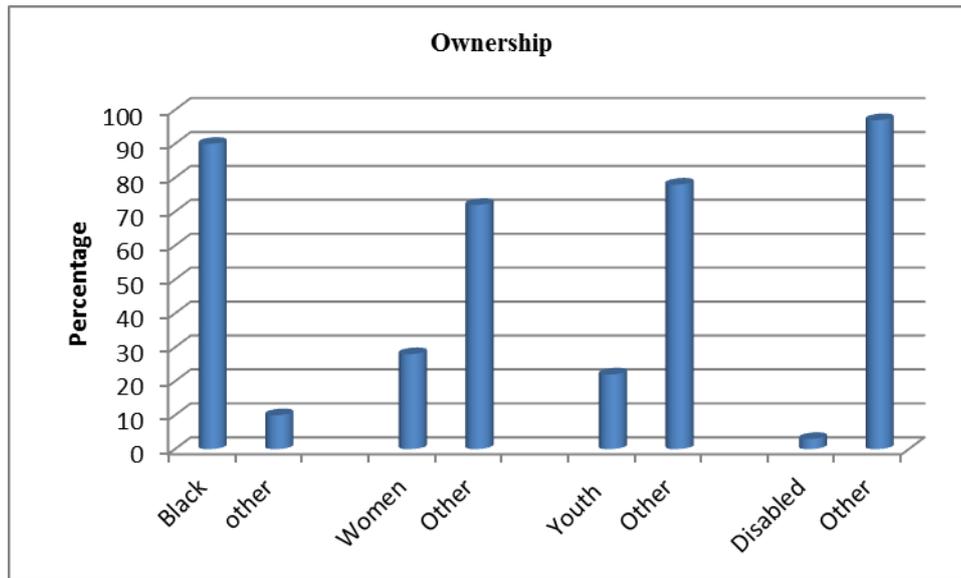
<b>Number of employees</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum</b>
6-11	96	22	22
12-17	168	39	61
18-23	109	25	86
24-29	48	11	97
30 +	12	3	100
Total	433	100	

Of interest were the results in Table 4.14 (above) that show 97% of ECs who had an employment size ranging between 6 to 29 employees.

- **Description of business ownership**

The ownership of emerging contractors' profile was assessed and the results are summarised in Figure 4.5 (below). The results show that 90% of ECs who participated in this study were black-owned businesses, while 10% were white-owned. There were a significant number of women contractors registered with CIDB in Grade 2, as shown by the 28% of women who owned businesses and participated in this study (Figure 4.5). It is also interesting to note that 14% of emerging contractors who took part in this study were disabled. These results are a reflection of transformation among the CIDB registered contractors, from predominantly male ownership to a significant percentage of women, showing both genders participating in the industry.

**Figure 4.5: Representation of business ownership**



- **Work provided by emerging contractors**

An assessment of the work provided by ECs was made and the results reported in Tables 4.14 and 4.15. From the results, 24% were engaged in civil work while 76% were engaged in general building, and those registered in both general building and civil engineering. The finding demonstrates that general building work is less complex and requires less capital equipment than civil work and majority of ECs prefer this work segment.

**Table 4.15: Representation of civil engineering businesses**

Number	Frequency	Percentage	Cum
General building	331	76	76
Civil engineering	102	24	100
Total	433	100	

- **Projects work involved**

Table 4.16 (below) shows that 85% of emerging contractor surveyed were involved in government projects, while 15% were engaged in private and other projects.

**Table 4.16: Representation of those who do government projects**

Number	Frequency	Percentage	Cum
1	369	85	85
2	64	15	100
Total	433	100	

### 4.3.3 Reliability and validity Analysis

A Likert scale was used to measure number of attitudes issues towards performance, whilst the validity and reliability of the questionnaires were assessed using the Cronbach alpha and items which were not contributing were dropped. The results of the validity and reliability of the instruments used are depicted in Table 4.17 (below).

**Table 4.17: Reliability and Validity Analysis**

Construct	Cronbach's Alpha	Number of Items	Items Dropped
Financial Factors	0.869	8	None
Manpower Factors	0.828	6	(C4.5& C4.8)
Supply of Materials, etc.	0.896	6	None
Project Implementation	0.881	5	C6.6 & C6.7
Quality Factors	0.848	7	None
Legal & Regulatory Issues	0.934	8	None
Strategic Planning	0.926	5	None
Project Performance	0.927	9	None
Organization Performance	0.944	8	None
Performance Improvement	0.943	8	F12.1

The questionnaire was tested for internal consistency and reliability by calculating the Cronbach's Alpha value for the items on the scale. The above indicated Cronbach's coefficients were obtained and are all sufficiently large ( $> 0.80$ ), suggesting consistency of responses for all the subscales after dropping the identified items, the manpower factors (C4.5 and C4.8), project implementation (C6.6 and C6.7) and performance improvement (F12.1).

#### **4.3.3.1 Construct validity**

Evidence of construct validity is present when the pattern of correlations among variables conforms to what is predicted by theory (Cronbach, 1970:143; Zikmund *et al.*, 2010:308). In this study, the simple correlation and factor analysis of the relationships among variables were examined. Specifically, the seven determinants of EC performance, financial factors, manpower factors, material, equipment and machinery, project implementation, quality, legal and environmental, strategic planning and project performance were examined and linked to the performance of ECs. The reliability values and item to total correlations for these variables were reported in Table 4.17 (above). Construct validity consists of face validity, content validity, criterion validity, convergent validity and discriminant validity. Two suggestions about the relationships among the variables were advanced and these relate to convergent validity and discriminant validity. Each suggestion is considered in the following discussion based on results as indicated in Table 4.18 (below).

#### **4.3.3.2 Convergent validity**

Convergent validity ensures that concepts that should be related are indeed related (Zikmund *et al.*, 2010: 308). In this study a strong correlation among the three determinants (strategic planning, project implementation and project performance) of EC performance was established, suggesting that they are converging on a common construct as well as providing evidence of convergent validity. All of the correlations exceeded .7 and are all significant at  $p < .001$ . Convergent validity is also suggested by the high Cronbach alpha (.88) attained when all the scale items are combined into one scale.

#### 4.3.4 Confirmatory factor analysis

Table 4.18 (below) shows the correlation coefficients among the variables that were used in the factor analysis. They indicate good convergence and discriminant validity of the factor analysis, which demonstrates that the variables loaded on particular factors do correlate significantly. The highest correlation is between EC performance and project performance 0.4866, followed by the correlation between strategic planning and project implementation 0.3944. The lowest correlation of 0.0386 between project implementation and project performance shows a weak correlation between the two performance items.

**Table 4.18: Correlation analysis: EC performance, strategic planning, project implementation and project performance**

	EC Performance	Strategic Planning	Project Implementation	Project Performance
EC performance	1			
Strategic Planning	0.2106	1		
Project Implementation	0.2668	0.3944	1	
Project Performance	0.4866	0.0438	0.0386	1

Correlation analysis was conducted based on the perceptions of the respondents to explore the relationships between variables and to check the presence of multi-linearity.

#### 4.3.5 Determinants of ECs' performance

The data presented in this section is based on the perceptions of SBEs from qualitative results that indicated the following factors as the most important performance determinants of emerging contractors: Financial challenges, manpower factors, supply of materials, equipment and machinery, project implementation, quality factors, legal and regulatory factors, and strategic planning. The items in each category were analysed using the ranking method, implying that the top ranked item was perceived to have the most negative effect

on the performance of emerging contractors. Tables 4.18 to 4.24 present the perceptions of the respondents relative to statements pertaining to each research item.

- **Financial challenges that have negative effects on business performance**

On assessing financial challenges that impact negatively on business performance, the following table summarises the key results:

**Table 4.19: Financial Challenges**

<b>Statement</b>	<b>SA/A (%)</b>	<b>N (%)</b>	<b>DA/SD (%)</b>	<b>Rank</b>
Late payments towards completed work by clients.	89	8	3	1
Lack of collateral and assets.	88	9	3	2
Payment problems as a result of rework	83	10	7	3
Payment of performance guarantee	77	14	9	4
Poor cash flow management and budget control.	76	16	9	5
High registration and annual renewal fees.	69	18	13	6
Tender pricing pressure from main contractors.	67	23	9	7
High consultancy costs and fees	64	21	15	8
<b>Average score</b>	<b>77</b>	<b>15</b>	<b>9</b>	<b>5</b>

\*All percentages from table 4.19 to table 4.25 are based on 433 as the denominator for each item. The average score on each table was determined as a basis for overall ranking analysis.

From Table 4.19 (above), it was found that late payments towards completed work and lack of collateral and assets were ranked highest by SBEs in the financial category, while high consultancy costs and fees was given the lowest ranking. This suggests that SBEs did not perceive consultancy as a major challenge that affected ECs businesses. However, late payments affected SBEs' cash flow, particularly project budget and cost performance. Cash flow is used to evaluate cost performance of the project at any construction stage.

Delay in payment from clients to ECs leads to delay of project performance which would reflect on overall business performance. The results from this part agrees with those from the first part, in that any failure to provide adequate funding resources to ECs would make it impossible for contractors to meet project objectives.

- **Manpower issues that have negative effects on business performance**

**Table 4.20: Manpower issues**

<b>Statement</b>	<b>S/A (%)</b>	<b>N (%)</b>	<b>DA/SD (%)</b>	<b>Rank</b>
Shortage of experienced and competent labour force.	86	9	4	1
High rate of labour disputes and strikes.	85	10	5	2
Cumbersome administrative tasks such as UIF, workmen's compensation, skills development levy etc.	81	9	10	3
Low labour productivity due to employee dissatisfaction and absenteeism.	80	7	13	4
Little capacity to deal with the complexities of modern projects.	69	17	15	6
Poor labour supervision and workmanship.	64	17	19	7
<b>Average score</b>	<b>77</b>	<b>12</b>	<b>11</b>	<b>4</b>

On manpower factors, Table 4.20 (above) shows the key challenges as shortage of skilled, experienced and competent labour force. The other significant factors on this category are high rate of labour disputes and strikes, low labour productivity due to employee dissatisfaction and absenteeism. Employee absenteeism from work affects project productivity, resulting in the client suffering from project delay. SBEs perceive skills, knowledge and competency as major impediments of business performance, which suggests that availability of employees with high experience and qualifications leads to better project performance in terms of quality, time, cost and productivity.

- **Which of the following problems relating to supply of materials, equipment and machinery have negative effects on the performance of emerging contractors?**

When respondents were asked about their perceptions regarding the supply of material, machinery and equipment, the following responses were received:

**Table 4.21: Supply of materials, equipment and machinery**

<b>Statement</b>	<b>SA/A (%)</b>	<b>N (%)</b>	<b>DA/SD (%)</b>	<b>Rank</b>
Regular shortages of materials on site.	74	14	12	1
Excessive waste of material during the application process (e.g., unnecessarily thick plastering).	68	17	15	2
Lack of technical knowhow on quantity surveying of construction material.	67	13	20	3
Loss of material on site due to damage or theft.	59	22	19	4
Non-conformance of material to specification.	56	22	22	5
Deterioration of materials due to inappropriate storage.	55	24	21	6
<b>Average score</b>	<b>63</b>	<b>19</b>	<b>18</b>	<b>4</b>

Table 4.21 (above) shows that most of the SBEs perceive regular shortage of material on construction sites to have a major impact on business performance. This is evidenced by the higher ranking by SBEs on this item, followed by excessive waste of material during the application process, for example, unnecessary thick plastering. This suggests that when material is available at times it gets wasted and the project will suffer from problem of time and cost performance. The appropriate use of material becomes crucial for the success of any project.

- **Which of the following problems relating to project implementation have negative effects on the performance of emerging contractors?**

When respondents were asked about their perceptions regarding project implementation, the following responses were found (see Table 4.22, below).

**Table 4.22: Project implementation**

Statement	SA/A (%)	N (%)	DA/SD (%)	Rank
Time spent waiting for materials, site inspection; approval of quality control tests and results.	84	10	6	1
Unrealistic construction planned time by clients.	79	10	11	2
Lack of project coordination among contractors, subcontractors, clients and consultants.	78	11	11	3
Omissions in the construction plans.	77	11	11	4
Unplanned increase in the scope of work from the client.	75	13	11	5
<b>Average score</b>	<b>79</b>	<b>11</b>	<b>10</b>	<b>4</b>

- **Which of the following quality matters negatively affect the performance of emerging contractors?**

**Table 4.23 Quality matters**

Statement	SA/a (%)	N (%)	DA/SD (%)	Rank
Architectural drawings lack adequate technical information.	79	13	8	1
Poor information flow and coordination between Small businesses and stakeholders.	79	14	7	1
Poor relationships between Small businesses and stakeholders.	78	14	8	3
Inability to produce works of an acceptable standard	74	17	9	4
Failure to deliver projects on time to the satisfaction of the client.	73	15	12	5
Supervision of projects by unqualified project managers.	72	17	11	6
Inability to interpret construction tender plans.	71	19	11	7
<b>Average score</b>	<b>75</b>	<b>16</b>	<b>9</b>	<b>4</b>

The analysis of quality factors in Table 4.23 (above) shows that construction drawings lacked adequate technical information, as this was ranked the highest on the category. This is followed by poor information flow and coordination between contractors and primary stakeholders. The lowest ranked on this category was the inability of SBEs to interpret construction tender plans, suggesting that SBEs did not see this factor as a challenge in business performance. However, if construction drawings lack detailed information, quality will be compromised and may lead to client dissatisfaction and affect the implementation of project to specifications.

- **The following legal and regulatory issues have a negative effect on the performance of emerging contractors.**

Legal and regulatory factors (see Table 4.24, below) were analysed and the results showed that high health and safety costs had a negative impact on EC businesses. This was confirmed by 81% on safety training costs and 78% induction costs, who either strongly agreed or agreed to the negative impact of these variables.

**Table 4.24: Legal and regulatory issues**

<b>Statement</b>	<b>SA/A (%)</b>	<b>N (%)</b>	<b>DA/SD (%)</b>	<b>Rank</b>
High safety training costs.	81	9	10	1
High safety induction costs.	78	9	14	2
Government policies in the construction industry do not promote small scale construction enterprises.	77	12	11	3
Cumbersome registration requirements and stringent government and private support systems.	76	13	11	4
High costs on medical requirements.	76	12	12	5
Expensive first aid requirements.	70	13	17	6
High costs on personal protection requirements.	70	15	15	7
The grading system in the construction industry	69	16	15	8
<b>Average score</b>	<b>75</b>	<b>12</b>	<b>13</b>	<b>5</b>

These results are in line with Cheung *et al.* (2004) and Ugwu and Haupt (2007), who argued that health and safety requirements affect strongly the performance of construction projects. This was followed by government policies in the construction industry, which SBEs perceive as not promoting small-scale construction enterprises represented by 77%. This may be construed to imply that the government procurement system is not doing enough to promote the development of ECs.

- **The following statements relating to strategic planning have negative effect on the performance of emerging contractors.**

**Table 4.25: Strategic planning**

<b>Statement</b>	<b>SA/A (%)</b>	<b>N (%)</b>	<b>DA/SD (%)</b>	<b>Rank</b>
Lack of clear objectives	82	6	12	1
Little attention is given to Strategic planning	82	9	9	2
Weak management practices	82	9	9	3
Little attention is given to stakeholders' interest	81	8	11	4
Lack of long term vision	74	8	18	5
<b>Average score</b>	<b>80</b>	<b>8</b>	<b>12</b>	<b>3</b>

Strategic planning variables were analysed, and as Table 4.25 (above) shows, SBEs do not have clearly defined objectives in their businesses. Little attention is paid to strategic planning, weak management practices, stakeholder's interest or long-term vision. This category could be the most significant performance category that has a negative impact on emerging contractor business as the factors cause business to collapse. Furthermore, emerging contractors require a strong leadership that can plan and monitor, control and manage projects with high quality performance.

#### 4.3.5.1 Overall Ranking

The collected data was further analysed as presented in Table 4.26 (below) to determine the category perceived by SBEs to have the most impact on ECs' business in the Gauteng. The analysis indicated that strategic planning, project implementation, financial and manpower categories were the most important factors as agreed and ranked highest by SBEs, suggesting that these categories had the most negative impact on ECs business. The least ranked category was the supply of materials, quality and legal factors.

**Table 4.26: Overall ranking**

Category	SA/A	N	DA/SD	Rank
Finance	77	15	9	3
Manpower	77	12	13	3
Material, machinery and equipment	63	19	18	5
Project Implementation	79	11	10	2
Quality	75	16	9	4
Legal	75	12	13	4
Strategic Planning	80	8	12	1

#### 4.3.6 Hypothesis testing

The extent to which the research hypotheses were tested is presented in this section.

**Hypothesis 1:** Financial factors, manpower factors, supply of materials, equipment and machinery, project implementation, quality factors; legal and regulatory factors, strategic planning affect ECs' performance.

According to univariate analysis (simple linear regression) tested in Table 4.27 (below) based on the perceptions of the respondents, the following factors were found to significantly affect ECs' performance were less than ( $p$ -value  $<0.005$ ): financial factors; strategic planning; supply of materials, equipment and machinery; legal and regulatory factors; manpower factors; project implementation (delays) and actual project performance. However, quality factors were found not significant, ( $p$ -value  $>0.005$ ) it was

greater than 5% level of significance. The results were further tested using multiple linear regression method. The test of hypothesis one can be proved in the discussion below:

**Table 4.27: Results of univariate analysis**

Total Factor Performance	Coefficient	95% CI	p-value
Financial	0.176	(0.069 , 0.282)	0.001
Strategic planning	0.273	(0.153 , 0.393)	<0.001
Supply of materials	0.162	(0.055 , 0.268)	0.003
Legal and Regulatory	0.149	(0.069 , 0.236)	<0.001
Quality	0.101	(-0.018 , 0.220)	0.096 NS
Manpower	0.285	(0.163 , 0.408)	<0.001
Project Implementation	0.368	(0.242 , 0.494)	<0.001
Project Performance	0.482	(0.400 , 0.564)	<0.001

- **Multiple linear regressions**

Financial factors, manpower factors, supply of materials, and legal and regulatory factors found to be statistically insignificant were dropped and not reported in the results of multiple linear regression analysis. The scores were based on the Likert scale, whereby all items for each area were added to give what will be called the minimum and maximum score expected. These scores form a continuous score which was used in the modelling of the data for the regression.

The formula of the regression model, which predicts EC performance, is represented as follows:

$$y = b_0 + b_1x_1 + b_2x_2 + \dots + b_{10}x_{10} + e$$

Where:

$y$  is the total factor performance (TFP) or predicted EC performance, and is the key variable of interest this research wants to predict.

$b_0$  is the predicted value of TFP without any factors being accounted for. It is the estimated value of  $y$  when all the  $X_i = 0$ .

$b_1, b_2, b_3 \dots b_{10}$  is the change in the EC performance of TFP associated with a unit change in the variable  $x_1, x_2, x_3 \dots X_{10}$ .

$E$  is the error term associated with the measurement error of the variables put in this model.

Table 4.28 (below) indicates summary of the regression analysis for statistically significant factors only:

**Table 4.28: Results of multiple linear regression analysis**

<b>Total Factor Performance</b>	<b>Coefficient</b>	<b>95% CI</b>	<b>p-value</b>
<b>Strategic Planning</b>	0.117	0.007 0.227	0.037
<b>Project Implementation</b>	0.345	0.228 0.462	<0.001
<b>Project Performance</b>	0.488	0.410 0.565	<0.001

The multiple linear regression models below indicate the remaining significant factors based on the calculation *STATA* version 12. The estimated total factor of performance or predicted EC performance was 1.97.

$$\text{Perceived Emerging Contractor Performance} = 1.97 + 0.117 \text{ Strategic Planning} + 0.345 \text{ Project Implementation} + 0.488 \text{ Project Performance.}$$

Where (model interpretation):

The value of “1.97” in the model represents the attainable performance (moderate) that would be achieved by ECs when variables such as strategic planning, project implementation and project performance are excluded.

The value of “0.117” indicates that a unit increase in strategic planning causes a 0.117 unit increase in ECs’ performance.

The value “0.345” shows that a unit increase in project implementation results in a 0.345 unit increase in ECs’ performance.

The value “0.488” shows that a unit increase in project performance results in a 0.488 unit increase in ECs’ performance.

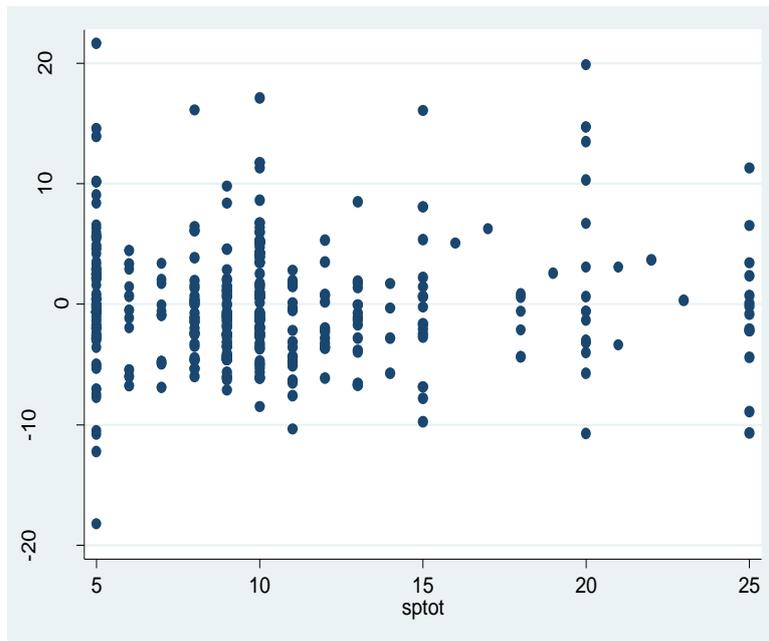
- **Model diagnostic tests**

Model diagnostic tests carried out through the use of hypothesis one established that all the assumptions for fitting a linear regression model had been satisfied.

#### ***4.3.6.1 Diagnostic graphs***

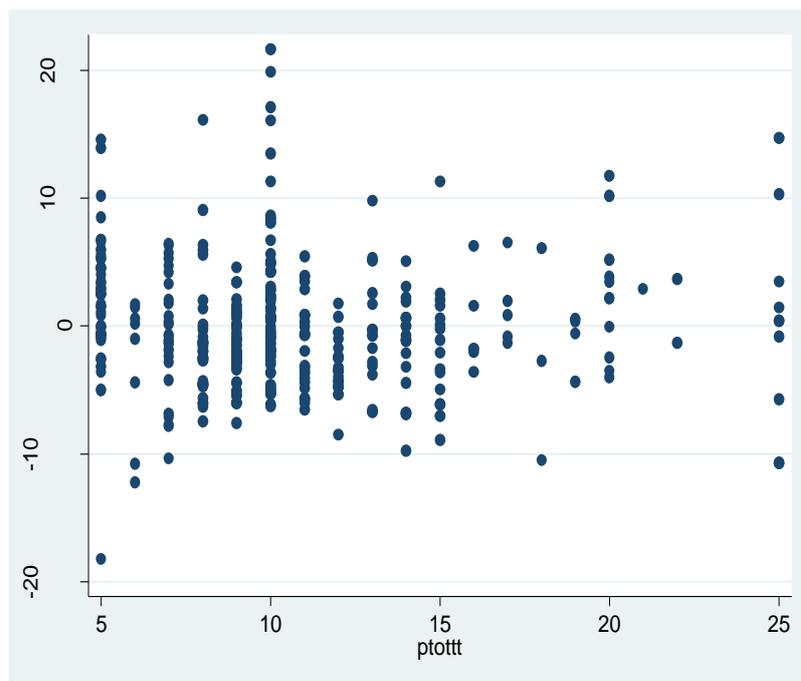
The graphs in Figure 4.6 to Figure 4.12 demonstrate that all the assumptions for fitting the linear regression model were met. This is because the residual plots are fairly linear and hence the fitted model is considered to be reliable and valid.

**Figure 4.6: Plot of residuals against strategic planning total score**



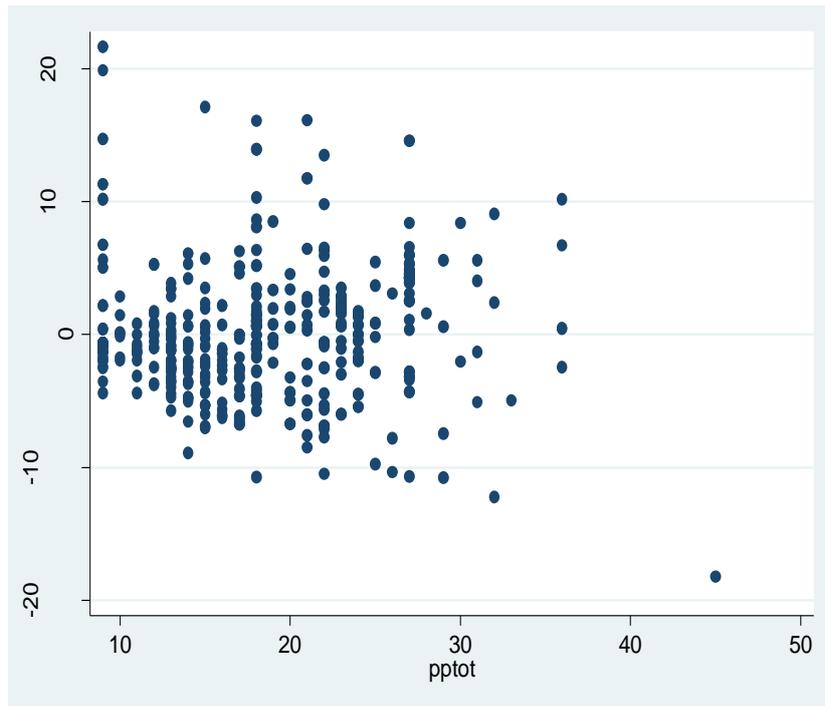
The strategic planning score residuals as show in figure 4.6 (above) is much positive which is a signal that strategic planning is an important variable determining the performance of ECs. Strategic planning seems much more important in the beginning as shown by the residuals.

**Figure 4.7: Plot of residuals against project implementation total score**



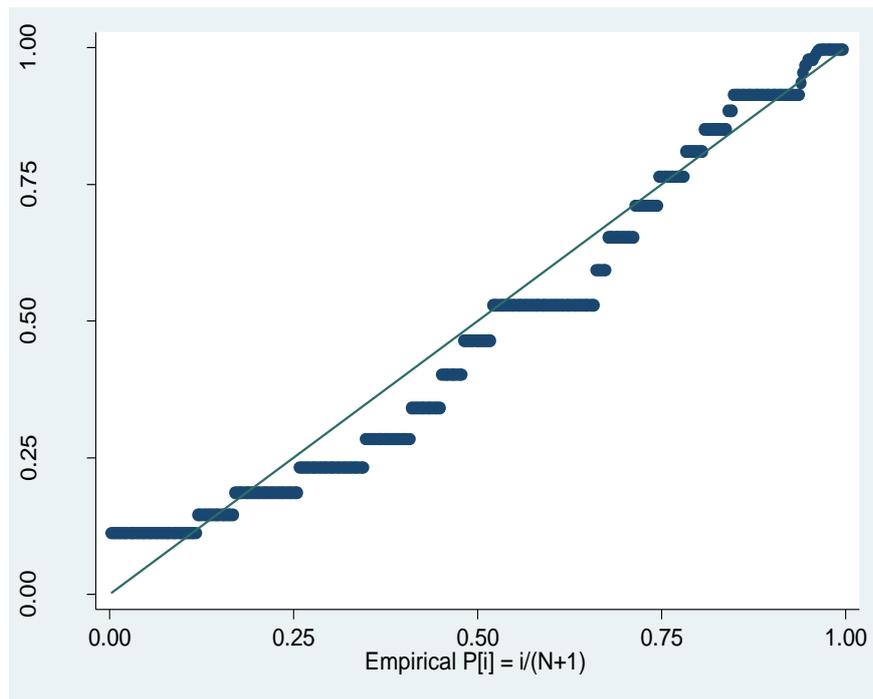
Project implementation is also a crucial variable after strategic planning as shown in figure 4.7 (above), however it is important at the beginning that is from 5 to 15 as indicated by the plots.

**Figure 4.8: Plot of residuals against project performance total score**



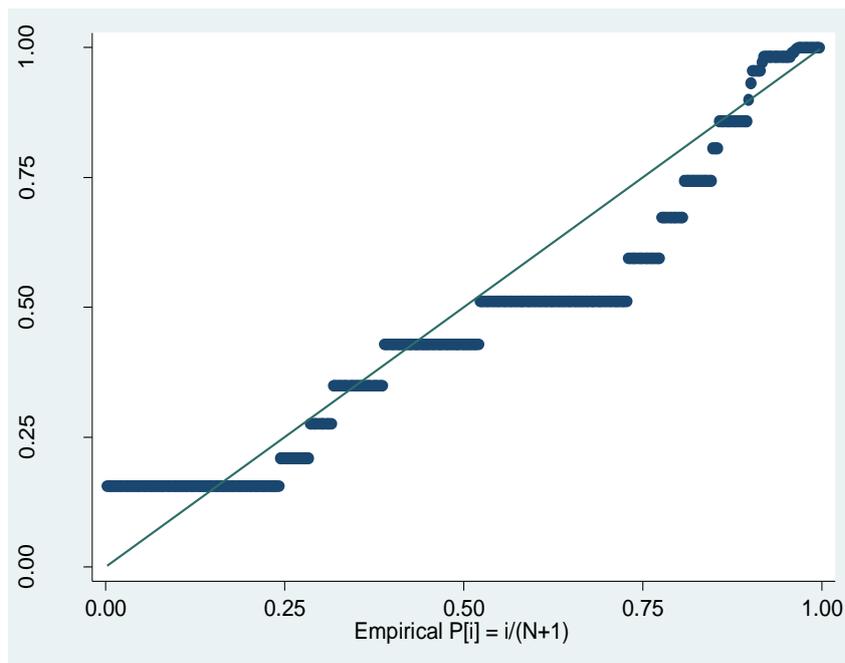
In figure 4.8 (above), the total scores for project performance are also concentrated at the beginning of the ECs indicating that where there is more strategic planning and appropriate project implementation there is high project performance.

**Figure 4.9: Normality plot of EC performance total**



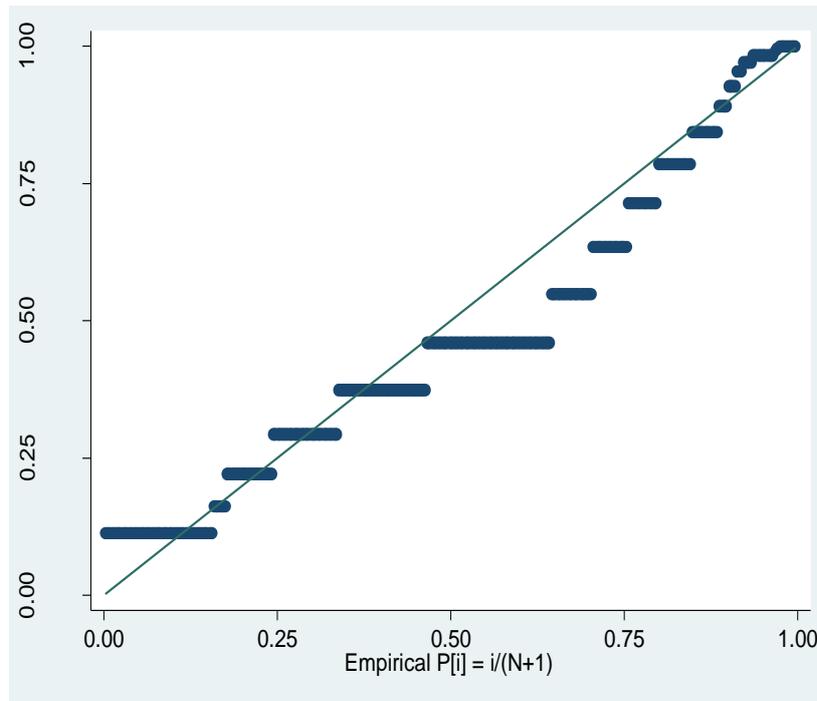
The graph shows that when the ECs are operating normal, the empirical are also increasing demonstrating growth and normality.

**Figure 4.10: Normality plot of strategic planning total**



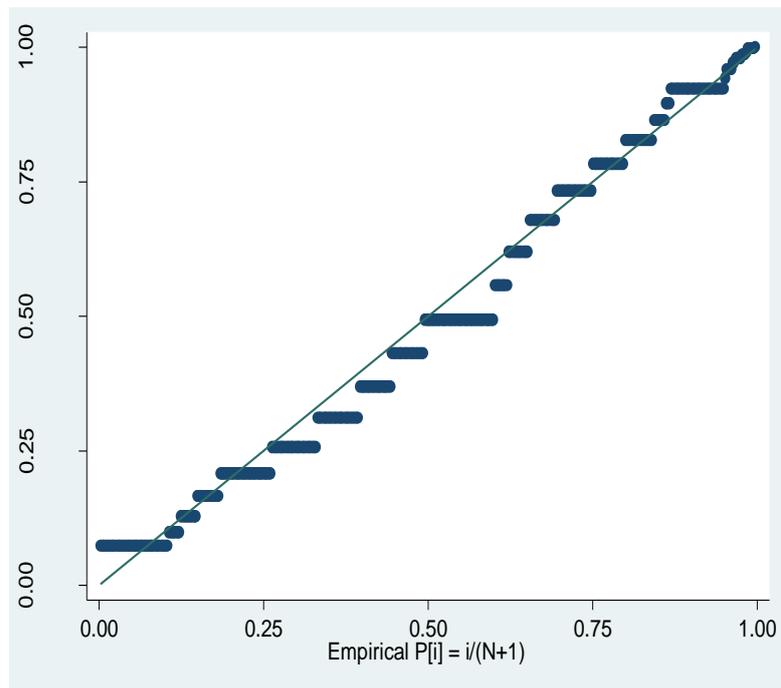
The graph shows that the normality of strategic planning depends on the stage of ECs in its growth.

**Figure 4.11: Normality plot of project implementation total**



Normality of the project implementation is the same as the normality of strategic planning also indicating that it changes and varies with the growth of the ECs.

**Figure 4.12: Normality plot of project performance**



The normality of the project performance depends on the use of time, the more the time is used efficiently the higher the performance of the project.

Based on the information above, the assumptions, namely linearity, linear independence of predictors, normality and constant variance of residuals were satisfactory. Thus the model is valid for the data.

- **Hypothesis 2: Project performance positively affects the overall corporate performance.**

According to the regression model established above project performance positively affects emerging contractor performance (positive coefficient of 0.488). As indicated in the model, project management receives direction and support from executive management and also acquires resources from the asset management portion of the organisation. Thus, the success of a project hinges on the performance of project management, with emphasis on the achievement of time, cost and quality targets (and achievement of health and safety requirements). The common causes of project failure include lack of clear links between the project and the organisation's key strategic priorities such as agreed measures of

success, lack of clear senior management and leadership; lack of effective engagement with stakeholders; lack of skills and proven approach to project management and risk management; too little attention to breaking development and implementation into manageable steps; evaluation of proposals driven by initial price rather than long term value for money; lack of understanding of, and contact with the supply industry at senior levels in the organisation and lack of effective project team integration between clients, the supplier team and the supply chain.

- **Hypothesis 3: Perceptions of SBEs can affect positively or negatively their business performance.**

The perceptions of SBEs were defined as the sum of all the responses from the section on perceptions on determinants of emerging contractor performance. Investigating the correlation of perceptions and emerging contractor performance indicated that perceptions of SBEs positively affect ( $r = 0.254$ ) their business performance. The hypothesis was tested by calculating the correlation coefficient between SBEs perceptions and business performance and the coefficient calculated using *STATA* version 12 showed a positive coefficient  $r = .254$

- **Hypothesis 4: There is a relationship between company profiles and Business performance.**

Regression analysis of emerging contractor performance against the number of years the business has been operating indicates that there is no significant relationship ( $p\text{-value} = 0.126$ ) between the two. Upon carrying out regression analysis, it is noted that there is no significant relationship between company performance and size of the company in terms of manpower ( $p\text{-value} = 0.1895$ ) and in terms of skilled workforce insignificant ( $p\text{-value} = 0.625$ ). This may possibly be explained by the observation that there is an insignificant number of skilled workers in each company ( $> = 3$ ).

The variable emerging contractor performance was converted to a categorical variable in order to carry out tests of association. The chi-square tests of association carried out indicated that there is no significant relationship between business performance and race

(p-value = 0.261), gender ownership (p-value = 0.804) and disability status (p-value = 0.255). However, there is a significant relationship between age of owner and business performance (p-value = 0.000) and the correlation coefficient is -0.1899 indicating that as age increases performance decreases.

There is no significant relationship between business performance and type of service offered, civil engineering (p-value = 0.996) and general building (p-value = 0.560).

There is no significant relationship between business performance and type of project, government (p-value = 0.777) and private development (p-value = 0.751).

#### **4.3.6.2 Summary of quantitative data**

Four hypotheses have been presented which confirm the key determinants of emerging contractors and the effect of perceptions on performance. Table 4.29 (below) provides a summary of the results for the study indicating that the first three hypotheses were supported while the fourth hypothesis was rejected.

**Table 4.29: Summary of hypotheses results**

#	Hypotheses	Findings
H1	Financial factors, manpower factors, supply of materials, equipment and machinery, project implementation, quality factors; legal and regulatory factors, strategic planning affect emerging contractor performance.	Supported
H2	Project performance positively affects the overall corporate performance.	Supported
H3	Perceptions of SBEs can affect positively or negatively their business performance.	Supported
H4	There is a relationship between SBEs profiles and business performance.	Not supported

#### **4.4 CHAPTER CONCLUSION**

The data which the research found in the field has been presented in this chapter. It was collected from the interviewees as representatives of ECs and in response to the research questions presented in the research instruments. The qualitative data was condensed and presented into themes relevant to the research question as outlined in chapter 1 section 1.3.2. The data from qualitative research was further broken into sub-themes which were tested in the field and have been presented in this chapter (Part B – Quantitative results). In Part B of this chapter, the relationships among variables were examined. When the results in this chapter are compared to the conceptual framework discussed in chapter two, the concepts indicated in the conceptual framework have been confirmed by the results of this research with exception of quality factor using univariate analysis. However, using multivariate analysis, the following factors financial, manpower, material, machinery and equipment, legal and regulatory were not found to be significant and were dropped. The analysis found strategic planning, project implementation and project performance as the most significant factors.

The next chapter synthesis and analyse the results of this study. This is to check if there are any agreements and disagreements between qualitative, quantitative data and literature as presented in chapter two.

## CHAPTER FIVE

### SYNTHESIS AND ANALYSIS OF RESULTS

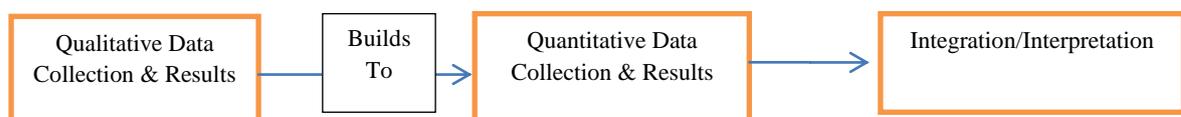
#### 5.1 CHAPTER INTRODUCTION

This chapter synthesises and analyses the results of the research findings that were presented in the previous chapter. The research used mixed methodology, therefore it was imperative to validate the results from diverse methods (qualitative and quantitative approaches), data sources, theories and investigator tactics. This combination enhanced validity and reliability of the results as well as extending the scope and depth of understanding of the subject. The qualitative and quantitative results of this study were integrated using data transformation, case analysis and typological development.

#### 5.2 DATA TRANSFORMATION

The results presented in the previous chapter (Part A and Part B) have shown that a sequential strategy is followed. The results from exploratory data collection are used in quantitative data analysis, as illustrated below in Figure 5.1 (below).

**Figure 5.1: Integration of results**



The purpose of this strategy is to show that quantitatively data analysis assisted in interpretation of qualitative results and enabled generalisation of qualitative findings to different samples. Thus, the qualitative results were used to negotiate access to the quantitative phase, though the results from quantitative complemented those achieved from the qualitative research by providing an enriched understanding of perceived factors affecting ECs business performance and served to redirect the prediction of their

performance. Based on the insights generated from the themes and specific statements made by key informants in the qualitative phase, an instrument was developed that was used to collect information for quantitative data analysis.

### **5.3 CASE ANALYSIS: DETERMINANTS OF BUSINESS PERFORMANCE**

Although there is a great focus on housing projects and large scale infrastructure projects in South Africa that could act as an opportunity to ECs, this research has found that ECs encounter many incidents that impede business performance. This section analyses cases that emerged from the qualitative study that were also confirmed by quantitative results, in order to determine the perceived determinants of business performance. The following review presents the exceptional examples found in qualitative results and which were confirmed via quantitative data analysis methods.

#### **5.3.1 Financial challenges**

There are agreements between the results obtained from the qualitative study and the quantitative results over late payment problems and lack of collateral and assets. Most key informants representing ECs reported late payment problems beyond 30 days (Table 4.2). This demonstrates the inability of clients in Gauteng to honour payments on time to ECs and resultant delays in building construction projects, as evidenced by Contractors A and B who had to stop work waiting for payment. The respondents further expressed dissatisfaction in the construction business as a result of payment problems and were not keen to confront their clients on payments as they were afraid of losing future opportunities. This suggests the source of emerging contractors' financial difficulties and challenges, and explains why ECs struggle as a result of insufficient funds to carry out the construction work as stipulated. The culture that exists in the industry if a small contractor presents a grievance to the main contractor may later lead to blacklisting by the client, thus jeopardising the chances of future employment.

The incident of late payment was confirmed by 89% of respondents in a quantitative survey who perceived that EC businesses are affected by cash flow problems which result from late payments on both parties (Table 4.19). This implies that ECs find themselves

using owner's equity to pay for wages and salaries due to late payments, as reported by Contractor B, C, D and F. Furthermore, 83% of the respondents perceived non-payment of rework of defective project units as an impediment, especially when the problem was caused by the main contractor (Table 4.19). Contractor C indicated that he did not get paid for processing reinforcing steel on site, but in spite of this he paid employees from his pocket for extra work. However, in the construction industry, when such incidents happen, the main contractor was required to issue a site instruction that would be used by the EC to make a claim. Such practices have a knock-on effect on ECs' performance as they would be unable to recover such costs. Again, this demonstrates the long and bureaucratic processes experienced by ECs towards receiving their payments.

- **Access to finance**

The qualitative and quantitative results concur that access to finance is not easy. The key informants (Contractor A – F) perceived lack of capital and access to finance as major challenges to EC business performance. The quantitative results established 88% of the respondents who perceived lack of collateral security in the form of assets as a challenge towards EC business performance (Table 4.19). This result demonstrates lack of appropriate mechanisms developed in the construction industry to take into account the financial requirements of ECs. In the absence of appropriate financing mechanisms, ECs are bound to lose construction opportunities as they would not be able to meet tender criteria. As a result of cash flow problems, Contractor E could not complete the construction of a housing project. The research further established that SBEs perceived banks as reluctant to extend credit to ECs and when they did they charged exorbitant interest rates. This is an indication that borrowing from established banks is perceived as expensive for EC business. While this may be the case, SBEs representing EC businesses can be educated about banking operations.

Banks require assurance that ECs' projects would offer a reasonable return on investment (ROI) which can only be demonstrated through sound business plans submitted to them. SBEs require guidance on how to apply successfully for bank credits and to demonstrate that their projects are viable investment opportunities. Thus, businesses that demonstrate and submit sound business plans to banks would be successful in accessing finance. The

results of this research suggest that ECs are not in a position to acquaint themselves with available credit opportunities.

- **Payment of performance guarantee**

The other agreement that emerged between qualitative and quantitative results relates to the payment of performance guarantee or deduction of retention. The emerging contractors complained about the payment of performance guarantee. The respondents claimed that they were unable to raise the required performance guarantee and would end up losing contacts in the process. Contractors A and E experienced challenges when they could not raise the performance guarantee and in some cases they lost the guarantee or retention at the end of the projects due to alleged claims. When asked about payment of performance guarantee, 77% of respondents confirmed the result arguing that payment of performance guarantee affected ECs' cash flow position (Table 4.19). However, it should be pointed out that in reality no client in South Africa would accept making an upfront payment to anybody without any form of performance assurance from ECs.

- **Bidding prices**

Bidding prices were found to be unworkable, as they were too low. The informants reported that the situation existed because there was low demand of work as a result of large and small contractors chasing the same work and the profits attached to these projects being low. The 67% of respondents perceived that the prices used by ECs to secure construction jobs was low to sustain business success (Table 4.19), which demonstrates that profits achieved by ECs were low if not negative and would not be sufficient to cover all business expenses. In any business operation, lower than expected profits are a major concern that should always be protected. This suggests lack of experience and understanding of project costing among SBEs and needs to be addressed if they are to make profits and grow.

### **5.3.2 Manpower challenges**

On the aspect of manpower challenges, the key informants argued that availability of employees with high experience and qualifications is a major challenge in the construction industry (Contractors A – F, Table 4.3), and this has a negative impact on quality, time, cost and productivity of ECs (Contractor E). The shortage of skilled manpower in the industry was confirmed by 86% of respondents in the quantitative survey and in another similar item 85% of the respondents perceived experienced and competent labour force as a key issue affecting EC performance (Table 4.20).

While the shortage of skills was perceived by SBEs as a major factor affecting project implementation, none of the respondents indicated any possibilities of what they were doing to solve the problem of skills shortages in the industry, indicating that SBEs were not complying with the requirements of the Skills Development Act of 1998, which states that employees must be exposed to two days of training for every 22 days of work and that a minimum of 2% of a project's budget should be allocated towards training programme. This implies that ECs are required to send their staff for further training or education to improve skills and knowledge in the industry. However, ECs may lack the required resources to facilitate such training, suggesting that the government must assist those ECs who engage in training their workforce to equip them with new skills. This may also suggest that ECs and main contractors need to form alliances to share skills and knowledge in the industry as this would facilitate transfer of much needed skills.

This research established that real shortages exist among construction artisans and covers the entire spectrum of building craftsmen, including bricklayers, carpenters, plumbers and reinforcing steel fixers. Such qualifications can only be improved through apprenticeship training facilities and this result suggests the South African government needs to consider establishing such facilities as these skills form the backbone of any developing economy.

- **Labour productivity**

Perceptions about labour productivity indicated that the quality of labour in the industry was poor, resulting in low labour productivity (Contractors A – F, Table 4.3), causes of which include low wages, union agreements, absenteeism and high level of turnover in the

industry. Poor working conditions in terms of low wages and salaries were highlighted by key informants. Quantitatively, 80% of respondents confirmed low labour productivity in the industry (Table 4.20), whilst both qualitative and quantitative results indicated poor working conditions and low wages as having led to low morale and high levels of employee absenteeism, in turn resulting in low labour productivity. This suggests that ECs did not comply with relevant legislation requirements such as the Basic Conditions of Employment Act (75 of 1997) and Labour Relations Act (66 of 1995). However, paying employees low wages is not unique to the construction industry, and is prevalent in almost all South African industries. As a result, key informants reported the employment of unskilled foreign labourers because foreign labour was much cheaper than local labour (Table 4.3). Again, this demonstrates that foreign labourers are a source of cheap labour in the South African construction industry. It is, however, vital that SBEs as representatives of ECs consider giving a living wage and decent work to employees if their businesses are to succeed. Contractor A had said: *“Employee morale was low throughout the duration of the project, Employees were not properly remunerated and this had a negative impact on productivity.”* Given such a practice, ECs are bound to fail until the human resource factor has been adequately addressed in the industry. It is vital for any business to invest in human capital in order to succeed in the construction business.

Another finding on manpower related to late payments of wages and salaries, which resulted in low morale and contributed towards low labour productivity. This result was confirmed by 85% of respondents in a quantitative survey who confirmed a high rate of labour disputes and strikes (Table 4.20). The result indicates that ECs either do not pay employees market-related rates or pay them late. This was attributed to a number of factors, chief among which respondents claimed non-payment of completed work by the client and poor cash flow management. These results are in agreement with the perceptions of the key informants who indicated that they use the money from one project to finance other projects and use money to fund personal needs (Contractor E). This portrays greediness among SBEs who do not pay employees and, given this practice, retaining appropriately skilled employees would be a challenge and risk to EC business growth.

- **Industrial strikes**

Key informants perceived industrial action and strike as having negative impact on project implementation as these cause delays on construction projects (Contractor A – F, Table

4.3). It was confirmed that industrial action erupted while construction projects were in progress, which affected project implementation as the construction sites remained closed for weeks while employees were participating in industrial action and demonstrations. This result was confirmed by 85% in a quantitative survey (Table 4.20), suggesting lapses in the industry's good practise in respect of working conditions, payment and rates of pay, as outlined in the Basic Conditions of Employment Act 75 of 1997.

### **5.3.3 Materials and machinery**

The key informants suggested that the availability of equipment and material on construction site was crucial, however, Contractors A, B, C, D, E and F perceived that the unavailability of overhead cranes and material, and breakdown of equipment and machinery delayed the progress of their projects (Table 4.4). The key informants attributed delays to poor planning, which resulted in material shortages, poor servicing of equipment and machinery and resultant breakdowns. The research established that when material was available it was often wasted (Contractor B and E), and projects suffered from a problem of time and cost performance. Contractor A could not execute the excavation work because he had no reliable machinery and experienced frequent breakdowns that affected project delivery time. In a similar fashion, Contractor C wasted large quantities of reinforcing steel on site due to poor material management. These results were confirmed by quantitative results in which 74% of the respondents argued that regular shortages of material were a contributory factor in business performance, whilst 68% argued that excessive wastage of material during the application process was also a contributory factor (Table 4.21). This result demonstrates poor planning on the part of project management, inefficient communication among project team members and unreliable suppliers of material. The effect is that when there is delay of supply of material, such as reinforcing steel, breakdown of equipment such as overhead crane (Contractor A and B), the casting and handing over of completed work would be delayed.

This research established effective material planning as a major problem in project management, which translates into poor EC business performance. It demonstrates the importance of effective material planning on construction sites and this should be carried out according to the construction work during a particular period of time.

Another factor noted from the qualitative results related to marshalling tools, materials, plant and equipment on site (Contractor A, B, C, D and F). The key informants argued that the activity, though a necessary operation on the construction exercise, took a large amount of productive working time. Contractor C reported that reinforcing steel was not stored close enough to the work area, which led to double handling (Table 4.4). The movements of these materials and supplies around the construction project had a negative impact on the productivity and performance of this contractor.

The use of inappropriate material was widely reported by the key informants (Table 4.4) and confirmed by 56% of respondents who participated in the quantitative survey (Table 4.21). This demonstrates lack of technical knowhow in the industry on quantity surveying of construction material and possible cost overruns, thereby affecting the viability of ECs. Again, this suggests lack of material planning leading to wastage of material on site. In the material category, the quantitative results showed that lack of technical knowhow on quantity surveying of construction material was a factor that affected business performance, as confirmed by 67% of the respondents (Table 4.21).

Poor site management was widely perceived by key informants, indicating failure by main contractors to properly manage construction sites (Table 4.4). The respondents perceived it as a result of lack of experience, skill and knowledge in managing a construction project and material planning. This result demonstrates the source of delays in construction projects which impact on the performance of ECs and explains why ECs are not succeeding as they fail to monitor progress of construction works or material planning and could not manage all the administrative work in the project due to the influence of other stakeholders.

The research further established that emerging contractors lacked financial planning, as revealed in section 5.4.1, and at times entered into construction work without adequate equipment or machinery (Contractor A and E) due to lack of capital or collateral that could be used to secure loans through formal financial institutions. The result confirms the importance of ECs making savings in every project, and procuring and owning tangible resources that can be used in subsequent transactions as collateral security.

### **5.3.4 Project implementation**

The analysis of project implementation results confirmed incidents that had an impact on the performance of businesses, including weather conditions, liquidation of the main contractor, low bidding price, project delay and lack of detailed information on construction drawings (Table 4.5). With regards to weather conditions, SBEs needed to know that these delays were excusable in the industry and no party had any control over natural occurrences. These delays were caused by unforeseen factors beyond the control of any contractor or other party and were not attributable to their fault or negligence.

The quantitative survey revealed that 84% of respondents spent much time waiting for materials to arrive and for site inspections, while 79% confirmed that they had been given unrealistic time to complete projects by clients. With 78% citing lack of project coordination among contractors, subcontractors, clients and consultants (Table 4.22), this demonstrates that ECs' performance is affected by delays during the execution of projects, some of which are caused by the client or the main contractor who at times underestimate the completion time. This suggests lack of personnel in the industry with management and estimating skills within the EC business.

An analysis of qualitative results on project implementation demonstrated that the success rates is lower as a result of poor planning and coordination of activities by the main contractors, and mistakes or defective work as a result of omissions in the construction drawings (Table 4.5), as confirmed by 78% who participated in the quantitative survey and who perceive that lack of project coordination among contractors, subcontractors and consultants affected the performance of EC business (Table 4.22). This suggests that the performance of ECs is not based solely on SBEs conduct but rather other stakeholders have a role to play.

Respondents were asked about their perceptions on the effects of project delay in construction, with results showing that at times projects were not started on time, were delayed along the way, and were subject to catching up, with pressure exacted on subcontractors (Table 4.22). Respondents perceived that main contractors created problems by imposing unrealistic completion time which squeezed ECs profit margins. However, as discussed in section 5.4.1, the contracts manager should issue a site instruction to the contractor to factor in the costs incurred by the subcontractor in the event

that work has to be carried out to catch up on programme. This research established poor site management, lack of communication and misunderstandings between ECs and main contractor as reasons the site instructions were not issued, thus demonstrating lack of contractual understanding among ECs and resultant unnecessary delays in project implementation. Therefore, it is vital for SBEs to apply effective and efficient site management control that would promote their business performance.

### **5.3.5 Quality challenges**

Poor quality of work among ECs was established in this research as a major hindrance to EC performance. For example, contractor E could not complete the construction of a house in Boksburg, which left the client despondent and suggested that some ECs were not aware that their future work depended on the relationships created with clients based on overall performance from completed projects. The final structure had defects that included cracking foundations as a result of improper installation of reinforcing steel for a special foundation. If ECs consistently deliver poor quality on projects, as contractor E, this would lower the success rate of their businesses. The results from the qualitative survey corroborates those of the quantitative survey, with 74% of respondents perceiving inability to produce works of acceptable standard as a challenge, although 79% attributed this to architectural drawings that lacked adequate technical information (Table 4.23). On the same theme, 79% argued that poor quality was a result of poor relationships on construction sites between ECs and stakeholders, such as main contractors (Table 4.23).

The basic issue regarding quality is that SBEs as service providers must remain focused on the issue of client satisfaction, on which the success of their project execution and business performance is solely dependent. Contractors B and E demolished the structures after the engineer had failed to approve their quality, demonstrating that poor quality is costly to the client as it causes them financial and emotional hardship. Clients would recount stories of poor structures due to correcting defective work. The quality of work established by this research may be a reflection of quality levels in the South African construction industry, particularly the ECs sector. Given such sentiments, SBEs therefore need to work towards improving the quality standards of their workmanship if they are to restore the dignity of ECs in the industry. However, this result may confirm that ECs do not have adequate

resources to address quality problems. In any case, substantial quality improvements and efficiency are needed from ECs if they are to succeed and grow through the CIDB grading.

The results on quality demonstrate that ECs lack appropriate quality standards that could be used to measure quality performance. An example of a quality measure standard that could be adopted in South Africa is the practice in Singapore in which high quality standards are achieved through the introduction of the Construction Quality Assessment System (CONQUAS). This serves as a standard assessment method on the quality of building projects. Contractors use scores to set targets to achieve and assess the quality of finished building.

### **5.3.6 Legal and regulatory factors**

The results received from both qualitative and quantitative approaches on health and safety requirements are mutually corroborative. The key informants perceived lack of compliance by ECs as existing on construction sites, and health and safety requirements not being enforced when ECs worked on small projects, such as houses, though they become important when engaging in large projects (Table 4.7). It is therefore on large projects that ECs incur costs and lost time when they are forced to adhere to health and safety requirements. This result was confirmed by 81% of respondents who participated in the quantitative survey (Table 4.24). On the same table, respondents perceived health and safety requirements as having a negative impact on ECs' business performance, citing high safety training costs (81%), high induction costs (78%), high costs on medical requirements (76%), expensive first aid requirements (70%) and high costs on personal protection requirements (70%).

The research established that SBEs representing ECs perceived health and safety requirements as expensive for their businesses and felt that large businesses should carry all costs when they were sub-contracted. However, despite SBEs' displeasure on this theme, it is important for ECs to understand and adhere to the Health and Safety Act, as amended by the Occupational Health and Safety Amendment Act (181 of 1993). This is the instrument that provides for the health and safety of persons at work in connection with the use of plant and machinery and the protection of persons, other than those at work, against hazards to their health and safety. Safety is a major concern for every construction

company, regardless of the type of work performed. Therefore, SBEs need to adhere to Occupational Health and Safety requirements.

### **5.3.7 Strategic planning**

From the findings pertaining to strategic planning, the quantitative results confirmed the results that emerged from the qualitative study whereby most of the key informants had indicated that most construction businesses were neither planned nor defined before implementation (Table 4.8). The research established that SBEs learned from colleagues in the field, whose businesses were either performing well or not performing at all. When asked about formulation of long-term vision, 82% agreed that they had no clearly stated vision statements or objectives, and when asked about strategic plans the same percentage (82%) confirmed that there were no strategic plans for their businesses and no management practices (Table 4.25). Through these results, it was observed that management practice in EC business does not meet the recommendations of the strategic planning literature, namely, that businesses should engage in planning for the future to compete effectively and survive. Without appropriate strategic plans, ECs are bound to make mistakes in project pricing and execution, as indicated in the financial category. As a result of poor planning, some ECs, such as Contractor A, work on a project that is too large for its own resources and thus fail to cope due to limited capacity. Consequently, ECs without adequate strategic planning would not realise their performance potential in terms of growth and may harm their survival prospects.

The results on strategic planning show that ECs need to have long-term vision whereby the scope of business activities and objectives are defined. The scope of activities would define the frameworks for strategic planning and addresses the type of projects in which ECs wish to engage. This could encompass one or more sectors of construction, such as building and civil work. ECs should be able to define the geographic location of business activities and all this requires the preference of SBE based on the perception of the market. Business objectives should be clearly determined, which would be used as criteria to determine business success. In general, the long-term range goal of an organisation is to increase the wealth of its owners or at least to maintain it at its original size.

### **5.3.8 Summary of analysis**

The ranking of quantitative scores from the results (Table 4.26) indicated that the most important determinants of EC performance are strategic planning and project implementation. These factors were ranked as the factors that have most impact on ECs' business performance, based on SBE perceptions on category items. Project implementation comprises inadequate planning of projects before commencement, inadequate tools and equipment, delay in delivery of materials and design changes during project execution. The results of this research demonstrate that strategic planning and project implementation are the main factors that need to be considered when engaging in the construction business. Planning involves a number of aspects that were established in this research, namely, financial planning, cash flow management, pricing, human resources management, material planning and planning for health and safety requirements.

## **5.4 TYPOLOGICAL DEVELOPMENT**

Typological development involves the use of conceptual categories emergent from the analysis of one type of data to the analysis of a contrasting data type (Caracelli and Greene, 1993). The results from qualitative and quantitative methods were integrated based on the use of conceptual categories identified. In section 5.3 (above), the broad categories perceived to have an effect on business performance were established from both qualitative and quantitative approaches, namely, Finance, Manpower, Material, mechanical and Equipment, Project Implementation, Quality, Legal and Regulatory and Strategic Planning. The research established incidents that indeed shaped the performance of EC businesses as indicated in Table 4.9 in chapter four. In that table, for instance, the finance category included the identified critical incidents that have been encountered by ECs and similarly with other categories. The key informants were in agreement in most of the incidents that have impacted on business performance, including late payments, low bidding prices, payment of performance guarantee or retention, shortage of skilled and knowledgeable manpower, strike and industrial action, cumbersome labour processes, lack of capital and collateral, equipment breakdown, shortage of material on sites, loss of material on sites due to damage and theft, delayed projects, poor site management, changes in construction drawings, late inspection, absence of health and safety controls, weak

leadership, and poor resource acquisition and planning, as analysed in this chapter. This information represents the experiences and perceptions of SBEs on aspects that inhibit or promote EC businesses. These results are vital for both CIDB and SBEs as they help them to make necessary judgements that would assist EC business based on known situations.

The broad factors as highlighted above were further analysed after being broken down into dimensions of interest that were incorporated into quantitative analytical techniques. The data was analysed inferentially so as to generate interpretations that were generalisable to a population. Using univariate analysis (simple linear regression), all factors that emerged from the qualitative results were found to significantly affect ECs' performance (p-value <0.005) with the exception of quality factor that was not significant (p-value (>0.005)). A further analysis of the quantitative results using a multivariate approach revealed emerging contractor perception on the determinants of business performance as three significant variables emerged. The multivariate results revealed that ECs can predict performance based on strategic planning, management of project implementation and management of project performance.

The hypotheses were tested and the results demonstrate that there was corroboration in predicting business performance by using both qualitative and quantitative methods. Table 5.1 (below) is a summary of the results for the study indicating that the first three hypotheses were supported while the fourth hypothesis was rejected.

**Table 5.1: Summary of results**

#	Hypotheses	Findings
H1	Financial factors, Manpower factors, Supply of materials, equipment and machinery, Project Implementation, Quality factors; Legal and Regulatory factors, Strategic Planning affect emerging contractor performance.	Supported
H2	Project performance positively affects the overall corporate performance.	Supported
H3	Perceptions of SBEs can affect positively or negatively their business performance.	Supported
H4	There is a relationship between SBEs profiles and Business performance.	Not supported

## **5.5 CHAPTER CONCLUSION**

In this chapter, the synthesis and analysis of the results was provided. There was an agreement between findings from the qualitative method and the results obtained using the quantitative method. Generally, the synthesis and analysis indicated that the determinants of performance for ECs are enshrined within financial factors, manpower, material, machinery and equipment, project implementation, legal and environmental and strategic planning. However, using multivariate analysis, the research found that strategic planning, project implementation and project performance were the most significant factors that could be used to predict EC business performance. The next chapter presents the contribution of the study to knowledge.

## CHAPTER SIX

### CONCEPTUAL PERFORMANCE PREDICTION MODEL: CONTRIBUTION OF THE STUDY

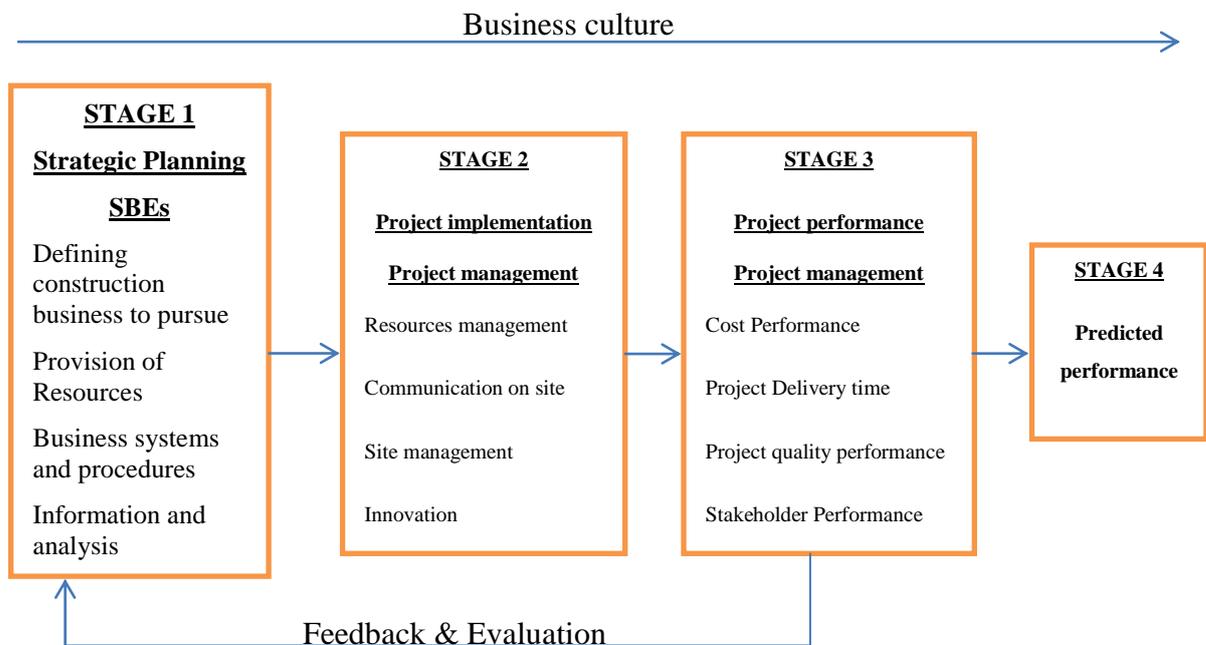
#### 6.1 CHAPTER INTRODUCTION

This chapter reviews and highlights the contribution of the study to the body of knowledge and to a better understanding of the key determinants of business performance through the conceptual performance prediction model, which is elaborated next.

#### 6.2 THE STRUCTURE OF CONCEPTUAL PERFORMANCE PREDICTION MODEL

The proposed model was developed based on the data generated from the perceptions of SBEs who participated in the study. The model is divided into four stages: stage 1 being the strategic planning, stage 2 being project implementation, stage 3 being project performance and stage 4 being performance prediction as illustrated in Figure 6.1 (below).

**Figure 6.1: The Structure of the conceptual performance prediction model**



The determinants highlight the facilitators of ECs' business performance. The model predicts that in order for ECs to become profitable and sustainable in the construction

business, SBEs must continually increase or put more effort on the three determinants identified and this would result in desired business outcomes and stakeholder expectations (community, government, customers and investors).

### **6.2.1 Business Culture**

The foundation of the research model demonstrates that leadership should develop business culture that supports continuous improvements and allows information sharing among parties that include SBEs, project management and teams. Such a culture would enable project management to receive regular support from SBE leadership in form of resources and this would promote project success that would translate into business performance. However, the research could not establish business culture of the executives interviewed.

### **6.2.2 The determinants of performance**

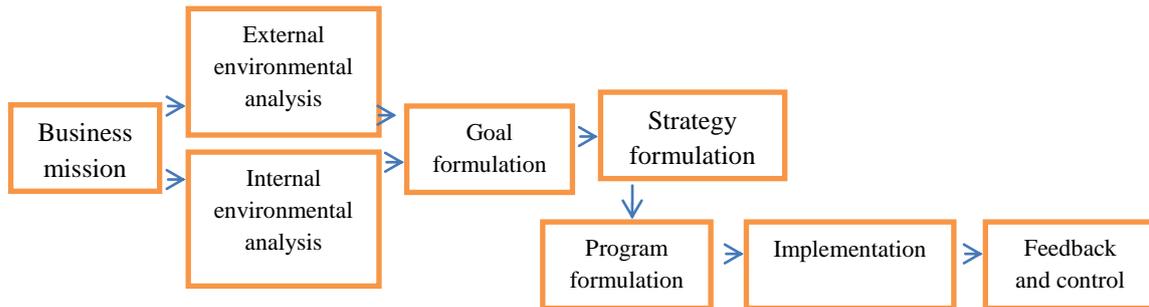
Based on the results of the study, three significant determinants of the performance of ECs in Gauteng were identified, namely, strategic planning, project implementation and project performance, as indicated in various stages of the model in Figure 6.1 (above). The model predicts that an appropriate management of these determinants by SBEs would result in superior construction business profitability, and business growth and satisfaction among stakeholders such as customers, community, government agencies and business employees.

#### ***6.2.2.1 Strategic planning***

Strategic planning is stage 1 of the model. The results of this study (Tables 4.25 and 4.28) have shown inadequate application of strategic management principles and project planning by some executives studied, despite literature that highlights their relative importance in the construction business (Adendorff *et al.*, 2011; Hill and Jones, 2009). The research model contributes by emphasising the importance of strategic planning in construction business whereby leadership takes a key role as a facilitator for the business

to achieve competitive advantage. Based on the research model, leadership is expected to be familiar with competitive processes that include formulation of business goals, mission and strategies, scanning and analysis of the environment, implementation, evaluation and control of operational plans, as indicated in Figure 6.2 (below).

**Figure 6.2: Strategic planning process**



- **SBEs Provide Leadership**

The results of this study reflected weak leadership in construction business, based on key informants' sentiments, as a contributory factor in ECs' poor performance. The model contributes by highlighting SBEs' function as the starting point to providing leadership and management commitment on overall business success by making decisions and providing enabling culture to the construction business. The model emphasizes SBEs as being in the right position to provide the direction the business should pursue and support. Executives should provide resources to management as well as defining business systems and procedures.

- **Defining the construction business to pursue**

The results of this study identified inadequate processes in defining the scope of the construction project and budgeting processes as indicated by key informants (Tables 4.19 and 4.25). The research model contributes by highlighting that successful completion of construction projects requires understanding of projects development, adequate project estimates, appropriate tendering prices, meeting deadlines and budgets to the satisfaction of clients. The successful achievement of these key indicators requires adequate business

definition and planning process from leadership before execution of the projects. This implies that leadership must understand the complexity of the business projects and provide its focus on customer and stakeholder satisfaction.

- **Provision of resources to project management**

Despite literature that advocates the provision of adequate construction resources to projects (Sillars, 2010; Dess, *et al.* 2008), the results of this study found projects that were delayed and abandoned due to poor provision of resources (Contractors B, C, D; (Tables 4.22 and 4.28). The model contributes by urging SBE leadership to make appropriate decisions on how to strategically provide resources (financial, human resources material, machinery and equipment) that are important for the execution of projects. This requires appropriate resource planning whereby SBEs would be able to provide resources to construction projects when required, in line with resource-based theory.

- **Business systems and procedures**

According to literature (Marx, 2012; CIDB 2012; Emuze 2011 and Ofori 2009), late payment and low prices are problems that affect the performance of EC businesses, as the result of this study confirmed. The conceptual performance prediction model contributes by highlighting the important role business systems and procedures play in a construction business. Based on these, the terms of payment of a project would be defined in the contractual agreement and the project pricing policies and procedures would be determined. Through this model, construction businesses require a set of project management procedures that should be followed when managing the project, and these should include the scope of the project, material issues and management of risks, communication and the work plan.

- **Management of information and analysis**

Information is essential to conduct schedule and cost estimation, to determine the profitability of the project and for business decision making purposes. The results of this

study demonstrate that SBEs are not well informed when they make decisions and this research model urges SBEs leadership in construction business to acquire and analyse market information for the benefit of the business.

#### ***6.2.2.2 Project implementation and resource management***

Project implementation is stage 2 of the conceptual performance prediction model. The results of this study demonstrated ECs weak management and planning of project resources and this contributes towards reduced business profitability, poor quality of structures and customer dissatisfaction, as reported in section 4.2.5. In literature, the importance of setting budgets which dictate the outcome of the entire project is highlighted (Maurer, 2007). The model contributes by encouraging project management to coordinate resources provided by leadership (people, equipment, materials, money and schedules) through appropriate project planning and in line with a contractual agreement. Once this is achieved, project management must have construction methods in place to determine the sequential order of the work to be completed and determine the duration of the project by identifying the starting and finishing dates of the project.

The project activities can be managed through a detailed Critical Path Method (CPM), as it that shows the interrelationships among activities in the project. The model suggests that SBEs must hire management who understand the project and have adequate experience in all construction phases up to competition. Thus, the model contributes by highlighting project resource management and planning as an essential component that requires attention as it involves effective use of resources acquired to perform projects.

- **Communication on site**

Communication is important for the success of ECs, but the results of this study show weak communication on construction sites. Some executives were found not to be linked to the central project goal. The model contributes by highlighting communication on construction site as essential and advocates that project management must establish a clear chain of communication network with other primary stakeholders. This includes weekly meetings on site that serve to update all stakeholders and discuss progress and potential

changes of scope of work. Through the communication procedure, requests for information, changes in construction drawings, directives from and to the client among other requirements would be communicated.

- **Site management**

Site management was identified as a factor that has an impact on ECs' performance (Tables 4.19 to 4.25 and key informants' sentiments). The conceptual performance prediction model contributes by urging project management to oversee that all activities in a construction project are coordinated. This involves coordinating and scheduling of all activities, including subcontracting. This suggests that knowledge and understanding of the South African construction industry, its nature and sensitivity, are crucial. The following skills and knowledge are therefore reflected from the results:

- Basic and appropriate practical knowledge of business principles
- Project planning
- General contracting
- On-site supervision and relevant technical skills
- Quantity surveying and estimation
- Budget management and cash flow
- Scheduling

- **Innovation**

The results did not confirm any form of innovation as being attempted by ECs. This weak application of innovation led the researcher to add this variable to the model. Using this variable, the research model contributes by encouraging to project management to strive to be innovative in all aspects of project execution, including supervision, training and managerial procedures so that their projects achieve and maintain the necessary excellence and so gain a competitive advantage.

### ***6.2.2.3 Project performance***

Stage 3 of the model relates to project performance. The results of this study have demonstrated that the success of a construction business is related to its project performance. This research model incorporates project performance indicators as identified from literature (section 2.4) and confirmed by the respondents (section 4.2.5), hence the appropriateness of cost performance, project delivery time, project quality performance and stakeholder performance measures as key project performance indicators.

- **Cost performance**

The results have highlighted projects that are completed at high costs (section 4.2.4). The model demonstrates that project management should analyse cost performance of a project on a regular and timely basis with the prime objective of controlling costs so as to meet the agreed budget, that is, the final project cost should be the result of careful cost management processes. By so doing, they would ensure business planned profitability and lead towards customer and other stakeholder satisfaction.

- **Project delivery time**

In order to achieve business planned profitability and customer satisfaction, the model demonstrates that project management need to manage delivery time and ensure the project is completed on or before the agreed handover date. The analysis of results on project implementation (section 4.2.2.4 and Table 4.21) highlight delays caused by the owner or his or her representative, the contractors themselves, the client, the consultant and the government organs, with some delays over which neither party to the contract has any control as a major impediment towards ECs' performance. Despite the cause of the delays, the model urges ECs to manage them on site and as they occur, bearing in mind that construction clients demand timely completion of projects without delay or additional cost.

- **Project quality performance**

Although multivariate results found quality not to be significant (Table 4.27), literature has shown that structural quality is one of the most important requirements in construction (Makui *et al.*, 2011). This model has added and urges ECs to produce structures of high quality in order to succeed in the construction business. ECs are expected to meet the client's quality specifications. The quality performance emphasises the ECs capability to meet with conformance to quality standards as provided by the client or his/her appointed representative through contract agreement. It is crucial for the ECs to fully understand as this would remind them to achieve projects without defects, so resulting in client satisfaction.

- **Stakeholder performance**

A review of literature (Idrus and Sodangi, 2010; Kagioglou, 2001; Murphy *et al.*, 1996) showed that the term 'performance' has been used interchangeably to describe business effectiveness, improvement, growth and success, so it is not clear what it means to different people and organisations. The results of this study have confirmed this, as key informants revealed many areas in which performance is required by different people and stakeholders (section 4.2.5).

#### **6.2.2.4 Feedback**

The research model suggests that project management must have a feedback tool that would be used to provide feedback on project performance to leadership, team members and project stakeholders. The model is based on a premise that project management should guide leadership and provide expertise from their past experiences. Feedback helps to determine how successfully the project is progressing and identify to management areas that require improvement. This would pave way for discussions between project management and leadership so that the project manager would be assured of regular support from leadership.

### 6.2.2 Performance prediction

Stage 4 of the research model is predicted performance, namely the results the EC as a business intends to achieve based on its objectives, the needs and expectations of the clients, the government, and other stakeholders.

**Table 6.1: Prediction of emerging contractor performance**

<b>Economic Indicators</b>	<b>Social Indicators</b>
Client satisfaction – Product and service	Stakeholder satisfaction
Elimination of Defects and Waste	Employment creation – Government and community
Construction cost	Employee Job satisfaction: Wages and salaries, working hours, training
Project Delivery Time	Investment into employee qualifications and skills
Health and Safety	Employee Health and Safety
Productivity of employees	Community satisfaction
Profitability and Growth	Environmental factors
Contribution towards national GDP	
Reduction in Contractual disputes	

In order to characterise the perceived measures that could assist in sustaining outstanding performance among ECs, they need to take into account expected performance from various constituencies. The performance indicators of the research model have been divided into economic indicators and social indicators, as shown in Table 6.1 (above). The measures were informed by various incidents that were encountered by SBEs in the study.

### **6.3 SUMMARY OF THE CONCEPTUAL PERFORMANCE PREDICTION MODEL**

In order for EC business to become successful, SBEs must understand the different stages of the construction business. The model starts with SBEs' leadership as the main driver for strategic planning and improvement in business through guiding on customers focus, people and other relevant stakeholders. The strategic plans are detailed into functional project implementation plans-the second stage. This entails efficient and effective management of project delays and resources as well providing communication to all primary stakeholders and professional site management. The effective project implementation would be reflected in successful project results (project performance) which would in turn translate into business results. This confirms the hypothesis in this study that there is a positive relationship between project performance and business performance.

The model predicts that holding other factors constant, every unit increase in project performance score results in a 0.488 increase in EC performance score, whilst a unit increase in project implementation without delays results in a 0.345 increase in EC performance, and finally a unit increase in strategic planning causes a 0.117 increase in SBE performance. Thus, the study found that strategic planning, project implementation and project performance were the most relevant of all variables to improving business performance. This is according to the formula.

#### **6.3.1 Benefits and limitations of the model**

Model diagnostic tests were carried out to establish whether all the assumptions for fitting a linear regression had been satisfied. All the assumptions, namely linearity, linear independence of predictors, normality and constant variance of residuals had been satisfied, thus the model is valid for the data. The model provides a representation that helps set a benchmark for predicting the performance of a construction business, and this would certainly benefit ECs, clients, community as well as policymakers. Using this model, SBEs can predict whether the project is on schedule, ahead of schedule or behind schedule, based on the management and coordination of project implementation activities. Based on that information, the project manager is expected to provide feedback to

leadership. The model expands our understanding of the theoretical principles in explaining ECs' business performance.

However, the model is a mere tool that can guide SBEs in running a construction business and cannot be considered as the most appropriate guarantee of optimal success of ECs, considering the perceived SBEs resistance and lack of ability to use it, and the resources required to implement it. The model should be regarded as part of the solution to predict EC business performance. The chances of improving the success and performance of the organisation are high, should ECs adapt the model.

#### **6.4 CHAPTER CONCLUSION**

The study has contributed by generating three significant determinants of construction business performance (strategic planning, project implementation and project performance) upon which ECs' performance can be predicted. Based on the analysis of the results all constraints (including financial, manpower, quality, legal and environmental challenges) require SBEs' strategic planning if their businesses are to succeed.

Chapter seven will draw conclusions and make recommendations, based on the findings of the study as presented above.

## **CHAPTER SEVEN**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **7.1 CHAPTER INTRODUCTION**

This chapter presents the conclusions and recommendations of the study arrived at on the basis of the findings from both the literature reviewed and the research findings. The conclusions are drawn and recommendations made, based on the objectives. The researcher expects ECs executives, researchers and policymakers to realise sustainable business growth and above break-even profits should they effectively implement the contribution of this study. The chapter ends with the limitations and recommendations for future research.

#### **7.2 KEY FINDINGS FROM THE PRIMARY RESEARCH**

In chapter four the results of the study were presented, while in chapter five a synthesis and analysis of results was presented and in chapter six the contribution of the study was discussed. The key informants and respondents provided necessary information regarding the perceptions of SBEs registered with CIDB in Grade 2. Primary data was obtained by administering an interview guide as well as questionnaire among a selection of SBEs in Gauteng Province. The following is a summary of key findings from the primary research:

- **Financial challenges**

The incidents relating to access to finance and late payment were widely reported and deemed a major hindrance to business performance by most respondents. This harmed the company's cash flow and means that ECs rely on borrowing to pay suppliers and labour. The results establish that the ability of emerging contractors to access the right type of finance is vital if they are to become profitable and grow. The study found that emerging contractors face more difficulties than larger contractors in accessing finance from banks, and this was attributed to their smallness whereby they are regarded as high risk businesses

and have low levels of assets and collateral. As a result, ECs in some cases resort to non-banking financial facilities to finance business activities.

- **People and skills challenges**

Most respondents reported acute shortage of skills, knowledge and experience in the construction industry, and this was found to be another factor that had an impact on the performance and competitiveness of emerging contractors. The shortages were evident mainly in skilled trades such as qualified bricklayers, steel-fixers, carpenters, plumbers, painting and tillers. The results showed that emerging contractors have no adequate training and development programmes in place, hence lack of appropriate industry qualifications by employees. Furthermore, there are no established training programmes in the industry designed to improve the required skills in the industry. The impact on emerging contractors related to cost overrun, delays and inefficiencies.

- **Project implementation challenges**

The study confirmed that many contracting businesses were not successful and this was attributed mainly to poor project planning. It was found that projects were not adequately defined or planned before implementation. The most important factors agreed by the SBEs as the main factors affecting performance of emerging contractors were material shortages, shortage of personnel with right skills, knowledge, experience and qualifications, lack of construction equipment, and poor leadership skills in project management. These in turn contributed to project delays. Lack of planning and poor definition of business requirements before engaging in project work were prominent weaknesses within emerging contractor business settings. The results confirmed that SBEs did not have clearly stated vision statements or objectives. Furthermore, there was no proper definition of the scope, risks, budget, timeline or overall business approach. The results showed inadequate resources among emerging contractors which are an important factor in project implementation. Yet, if resources are not available as planned, the projects will suffer from problem of cost and time performance. There were no appropriate project management

procedures used to manage or execute projects in terms of communication and risk management.

- **Quality factors challenges**

The qualities of structures produced by emerging contractors were of low standard due to the use of wrong materials and drawings that lacked adequate information, resulting in customer dissatisfaction. As a result, failure to achieve appropriate qualities of construction has affected the quality of structures, as evidenced by cracks in walls and the foundations of many structures. These results confirm many arguments, including media reports that have mentioned emerging contractors as the main victims in their workmanship. This illustrates that the quality of work delivered by emerging contractors affects their project performance, reputation, competitiveness and profitability, as well as their future selection by the main contractor.

Based on the importance of quality, various quality performance initiatives should be considered by emerging contractors, for example, ISO9000, ISO 14000, OHSAS18001, six sigma, and total quality management systems (TQMs). ISO9000 certifications related to construction are popular in several countries and the application of ISO9000 based Quality Management Systems (QMS) in the construction industry have been studied by several researchers (Palaneeswaran *et al.*, 2006); Love and Li (2000); Riberio and Curado (2000); Dissanayaka and Kumaraswamy, (2001). The significance of ISO9000 based QMSs would include improved quality system, improved customer satisfaction, continuous improvements, standard processes, structured documentation procedures and better control, reduced costs, reduced wastages, reduced rework, less conflicts, claims and disputes, enhanced consistency and better image (Palaneeswaran, *et al.* 2006).

- **Legal and environmental management practices challenges**

Most emerging contractors have not yet fully grasped the health and safety management practices in the construction industry. The absence of controls and weak application of safety related requirements through project implementation was found to be lacking, as was safety training. This demonstrates that emerging contractors in CIDB Grade 2 seem

not to care about applying health and safety requirements especially when they secure large projects, as they attribute that this requirement is an unnecessary cost to their businesses. Thus, emerging contractors become vulnerable when engaging in business with large companies as they would be required to comply and failure to comply lead towards the termination of contracts.

- **Strategic management challenges**

There are weaknesses in management skills that have impacted emerging contractor performance in the construction industry. Thus, the role of capable and effective management on the performance of contracting business becomes crucial. Management is vital in supply chain management and coordination of project activities, therefore capability of project teams is an important enabler of successful project and business outcomes. Continuing investment in the development of the management skills is also necessary to assure continuing improvement in industry performance.

### **7.3 CONCLUSIONS**

The objectives the study set to achieve are discussed in this section, with conclusions obtained and an assessment as to whether the research objectives have been met.

**The first objective of this research was to assess the critical incidents that have been encountered by SBEs in the construction industry and their effect on business performance.**

Based on the research results, incidents affect business performance. Those identified for emerging contractors help them to manage their business. Incidents such as late payments, shortage of skills and material on construction sites were found to have a serious effect on ECs' business operations. The first objective was achieved as the incidents that affect business performance were identified (see Table 7.1). The table reflects seven broad categories, showing the critical incidents that are encountered by SBEs in the construction industry. The conclusion is that the situations under which ECs operate require

intervention by policymakers in areas that include payments and skills improvement in the construction industry. The results demonstrate that the situation is not under control, and leaving this to ECs alone would not resolve their performance problem.

**Table 7.1: Summary of identified critical incidents**

<b>Financial Category</b>	<b>Manpower Category</b>
Lack of collateral and assets due to poor credit ratings	Shortage of experienced and competent labour force
Late payments towards completed work by clients	High rate of labour disputes and strikes
Poor cash flow management and budget control	Cumbersome administrative tasks such as UIF, workmen's compensation, skills development levy etc.
Tender pricing pressure from main contractor	Low labour productivity due to employee dissatisfaction and absenteeism
High consultancy costs and fees e.g. accountants and architects erode profits	The skills obtained from higher education and the skills required in the construction industry do not match
High registration and annual renewal fees	Poor labour supervision and workmanship
Payment of performance guarantee / retention	Little capacity to deal with the complexities of modern projects
Payment problems experienced as a result of rework relating to faults (e.g., <i>project design errors, formwork errors, plumbing errors, mechanical and electrical works faults</i> )	Contractors, subcontractors, clients and consultants do not work together as a project team
<b>Materials / Equipment Category</b>	<b>Project Implementation Category</b>
Lack of technical knowhow on quantity surveying of construction material	Poor planning techniques and failure to identify critical activities
Regular shortages of materials on site	Lack of project coordination among contractors, subcontractors, clients and consultants
Excessive waste of material during the application process (e.g., unnecessarily thick plastering)	Unplanned increase in the scope of work from the client
Non-conformance of material to	Unrealistic construction planned time by clients

specification	
Loss of material on site due to damage or theft	Failure to commence project on time due to main contractor delays
Deterioration of materials due to inappropriate storage	Omissions in the construction plans
Loss of material on site due to damage or theft	Time spent waiting for samples, materials approval, site inspection; approval of quality control tests and results
Poor quality of equipment	
<b>Quality Category</b>	<b>Legal and Environmental Category</b>
Architectural drawings lack adequate technical information	Compliance with health and safety regulations is a hindrance to small scale construction enterprises performance relative to:
Inability to interpret construction tender plans	High costs on medical requirements
Supervision of projects by unqualified project managers	High costs on personal protection requirements
Failure to deliver projects on time to the satisfaction of the client	Expensive first aid requirements
Poor relationships between Small businesses and stakeholders	Cumbersome registration requirements and stringent government and private support systems
Inability to produce works of an acceptable standard	Government policies in the construction industry do not promote small scale construction enterprises
Poor information flow and coordination between Small businesses and stakeholders	The grading system in the construction industry
<b>Strategic Planning Category</b>	
Lack of long-term vision	
Lack of clear objectives	
Weak leadership / management practices	
Little attention is given to strategic planning	
Limited work opportunities for emerging contractors / high competition	

**The second objective of this research was to assess the determinants of ECs' performance in Gauteng Province of South Africa**

The research model predicted that financial factors, manpower factors, supply of materials, equipment and machinery, project implementation, quality factors; legal and regulatory factors, strategic planning affect ECs' performance. Based on the perceptions of the key informants, the qualitative results were consistent with the research model where the above determinants were found significant. The perceptions of the respondents were assessed using a quantitative approach and the results achieved also confirmed the research model, with the exception of quality factor that was found not significant. The results were based on the univariate analysis, however, when multivariate analysis was performed, the study concluded that there are three key determinants that are important on ECs business performance in construction industry if profitability and growth are to be achieved. These determinants include strategic planning factors, project implementation and project performance and are relevant in the area of business management. Accordingly, the second objective was achieved.

**The third objective was to assess the relationship between ECs' project performance and ECs' business performance**

The study concluded that there is a statistically significant relationship between project performance and business performance. This implies that effective project execution would promote the growth and profitability of the construction business. Thus, if the project meets the technical performance and if there is a high level of satisfaction concerning the project outcome, the goal of an organisation to be successful at survival would be achieved. Therefore, the success of a construction project is based on the achievement of time, cost and quality targets, and health and safety targets, which would translate into the overall performance of an organisation. For this to happen, project management must receive direction and support from ECs' leadership and with that support project management is expected to acquire income from the project that would stimulate the growth and profitability of the EC business. Based on this relationship, it can be concluded that projects generate immediate income for the business and at business

level, leadership focus on the long term survival of the organisation. The third objective was achieved.

**The fourth objective of this research was to assess the perceptions of SBEs of the determinants of performance among the ECs in Gauteng Province of South Africa**

A structured questionnaire was used to assess the impact of various attitudes and factors affecting emerging contractor performance. The questionnaire helped to elicit the perceptions of SBEs towards key performance indicators in the industry. As highlighted in objective 2, the study concluded that SBEs perceive weak performance of ECs to be associated with strategic planning factors, project implementation and project performance variables. Based on the quantitative results, the perceptions of SBEs were defined as the sum of all the responses from the section on perceptions on determinants of emerging contractor performance. Investigating the correlation of perceptions and emerging contractor performance indicated that perceptions of SBEs positively affect ( $r=0.254$ ) their business performance.

**The fifth objective of this research was to establish if there is a relationship between the profiles of ECs and performance in the industry**

The profiles of ECs were examined, focusing on business location and age, CIDB registration grading, manpower size, description of business ownership, work provided by ECs and types of projects executed. A regression analysis was performed and a conclusion was drawn that there was no significant relationship between company performance and size of the company in terms of manpower ( $p\text{-value} = 0.1895$ ) and the skilled workforce ( $p\text{-value} = 0.625$ ). This may possibly be explained by the observation that there are insignificant number of skilled workers in each company ( $\geq 3$ ).

The variable emerging contractor performance was converted to a categorical variable in order to carry out tests of association. The chi-square tests of association carried out indicated that there is no significant relationship between business performance and race ( $p\text{-value} = 0.261$ ), gender ownership ( $p\text{-value} = 0.804$ ) and disability status ( $p\text{-value} = 0.255$ ). However, there is a significant relationship between age of owner and business

performance (p-value = 0.000) and the correlation coefficient is -0.1899 indicating that as age increases performance decreases. There is no significant relationship between business performance and type of service offered, civil engineering (p-value = 0.996) and general building (p-value = 0.560). There is no significant relationship between business performance and type of project, government (p-value=0.777) and private development (p-value=0.751). The fifth objective was therefore achieved as the relationship between the profiles of ECs and performance in the construction industry was established.

**The sixth objective of this research was to characterize the perceived measures that could assist in sustaining high performance among ECs**

The sixth objective was achieved through the development of the conceptual performance prediction model as indicated below.

$$\text{Emerging Contractor Performance} = 1.97 + 0.117 \text{ Strategic Planning} + 0.345 \text{ Project Implementation} + 0.488 \text{ Project Performance}$$

The structure of the model and how it works was discussed in chapter six. The conclusion reached was that holding other factors constant, every unit increase in project performance results in a 0.488 increase in emerging contractor performance. This means the negative effects observed in chapter five including time overrun, cost overrun, disputes, arbitrations, project abandonment and project delay should be avoided to enable appropriate performance by emerging contractors. This demonstrates that the performance of a project is based on its ability to meet the technical performance specifications as this would translate into the overall performance of the organisation.

#### **7.4 RECOMMENDATIONS**

The following recommendations are made based on the results of this study. These could be considered for future implementation at emerging contractor and policy making level.

#### **7.4.1 Recommendation for ECs in CIDB Grade 2**

Based on the findings made on the performance determinants, recommendations are made on the following themes.

- **Finance**

SBEs must acquire and develop financial management skills that would enable them to understand and manage financial requirements that investors and other stakeholders need. The financial areas that require SBEs to have serious skills development are budgeting and cash flow management, bookkeeping knowledge, financial policies and controls, and project pricing strategy. SBEs must ensure clients have guaranteed adequate funding of projects before execution to avoid unnecessary time overrun, which has negative effect on cost, and must sign a contract document that clearly shows appropriate terms of payment.

- **Manpower**

There is a severe lack of artisans in the industry that contributes towards ECs' poor performance on construction projects, and this requires SBEs to take an initiative role in terms of training employees, motivating and retaining competent workforce. Therefore, SBEs are advised to respect the people who work for them, and this can be reflected through people investment, among other aspects. The implication is to retain a stable workforce which is critical to their business success. High employee turnover, as reflected in the study, will result low employee morale and hence low productivity.

- **Material, machinery and equipment**

ECs must ensure functional machinery and equipment are provided, checked for conformance before application to enable timely completion of projects. SBEs must ensure regular supply of the material in proper quantity to avoid late or irregular delivery or wrong type of material delivery during construction stage. Furthermore, there should be a

staff dedicated for material management and storekeeping as this would ensure effective and efficient management of construction material on site.

- **Project implementation**

ECs are urged to strive for efficient project delivery, which requires maximum efficiency in terms of cost, time, quality, health and safety, community and employee satisfaction.

- **Quality**

SBEs must understand the expected quality standard of every project, strive to meet its technical specifications, and ensure that they provide the functionality required by the client. It is of paramount importance that the client is satisfied with the service provided during project start-up, transfer and implementation phases.

SBEs must ensure their own inspection of work is carried out and this would help to point towards and eliminate any defective work. The quality of construction project must be checked on a regular basis to ensure consistency in standards, as failure to meet quality levels would cost a construction business the customer's future revenue stream.

- **Strategic planning**

SBEs are required to provide clarity of purpose of their businesses, achievable through identifying long-term business and project objectives. This must focus on providing value to the clients and meeting profitability and growth of their businesses. In addition, SBEs' must fully understand project risks and develop a realistic and affordable business plan and budgets. It is recommended that SBEs develop themselves in terms of general management and supervision of their businesses and construction projects they execute.

#### **7.4.2 Recommendation for the CIDB**

Based on the findings of this research are recommendations that are relevant to the CIDB:

- The CIDB, being the board responsible for the registration and classification of emerging contractors engaging in public projects, should insist on emerging contractors having certain key technical staff as a condition of registration.
- The awarding of contracts by clients does not take into account the performance capabilities of the contractor, but rather gives more weight to prices than to the capabilities and past performance of contractors. In this case, the introduction of the COMPAS quality system used in Malaysia may be useful for the CIDB to adopt.
- The CIDB should enforce quality standards to be met in the industry and in order for this to happen uniform industry performance measure standards for each grade are necessary. This would include quality training, monitoring, recognising and rewarding those emerging contractors who achieve high quality standards set for the industry. The performance reward can be in the form of trophies for emerging contractors who achieve outstanding performance.
- There is pressure for the CIDB to grow emerging contractor into higher Grades, 3, 4 or greater, however, instead, it should place more emphasis on developing good emerging contractors, not only to achieve a higher financial grade but in terms of their capability to produce quality work and meet industry standards. That way, small contractors could make as good a profit as their larger and higher graded counterparts, providing they satisfy customer needs. The CIDB, therefore, needs to identify ECs which have the potential to be developed into larger and technically better businesses.

#### **7.4.3 Recommendation for the South African government**

- Late payments have been widely reported as the main impediment of emerging contractor success. In order to overcome the issue of meeting quality standards needs to be addressed and linked to government regulations on payments. This would ease access to finance by emerging contractors. Countries such as Australia, New Zealand, Singapore and the United Kingdom have introduced legislation to

enforce the right of subcontractors and suppliers to receive payments irrespective of whether the main contractor has been paid.

- The current labour laws are perceived by SBEs as cumbersome, for example in the perspective of SBEs as found in this research, disciplinary processes are a hindrance towards ECs' performance, hence, a collaborative effort by government and industry stakeholders is crucial, particularly within the labour law environment.
- Lack of collateral and assets was widely reported by most SBEs, highlighting major impediments to emerging contractors' performance. In order to build a strong construction sector, the development of a financing mechanism that takes into account the specific needs of ECs is required. In this case, the study recommends the formation of a sector bank that would support emerging contractors' business strategies and access to finance at reasonable rates. The bank would be dedicated to address the specific needs of emerging contractors in the building and construction industry.
- The shortage of skilled labour can be addressed by the government through development of technical colleges (apprenticeships) for industry-specific training of workers in order to equip them with appropriate industry knowledge and qualification. Training is fundamental to improving and developing overall business performance.
- ECs use low bidding prices in order to secure tenders and, given this scenario, ECs would not be able to become profitably or grow. The recommendation to the government is to create an environment that would grow the economy so that there is enough work for all CIDB construction Grades 1 to 9. At the time of this study, all CIDB grades were chasing the same jobs, irrespective of size and magnitude, in order to survive.

#### **7.4.4 Recommendation for construction clients / main contractors**

- Clients must know what kind of products they want and clearly define them to guide emerging contractors. Thus, they should know what it costs to have completed buildings through qualified estimators, be sure of their source of finance, inform the planners and be prepared to meet obligations of timely payments of dues in addition to carrying out timely approvals. Most importantly, clients must ensure that funds are available or adequate arrangements have been made for funds before projects are started, so that emerging contractors would not struggle with cash flow.
- Clients are recommended to desist from appointing subcontractors based on lowest prices and should consider their ability to deliver appropriate quality structures on time and within budget.
- When main contractors engage ECs as subcontractors there is a need to fully support and collaborate in training them during construction so that they execute successful projects.

#### **7.5 IMPLICATIONS OF THE STUDY**

Based on the findings of this study, emerging contractors should pay close attention to their particular business circumstance before embarking on the execution of construction projects in order to better understand the implications of their actions. Particular attention should be taken on the following implications.

- **Financial implication**

The results of this study demonstrate that ECs' access to finance is limited and the cost of capital high. As long as access to finance remain a challenge to ECs their performance in terms of growth, profitability, job creation and economic growth, among other performance indicators, will remain weak and they would not be able to adequately plan.

Delayed interim payments were expressed by all respondents and place strain on ECs. The implication is that projects would not be completed on time when late payments persist, hence the efforts by government in promoting ECs would be a waste of time and energy. Therefore, it is extremely important that clients guarantee adequate funding before commencement of projects.

- **Manpower implication**

The results show that lack of skills and restrictive labour regulations have a negative effect on the performance of ECs in terms of productivity and job creation. This implies that if skills are not improved labour productivity would remain low and if labour laws are not relaxed there would be no job creation, but rather existing jobs would be lost.

- **Project implementation implication**

The results demonstrated that SBEs place great emphasis on project implementation at the expense of organisation. They put little effort into business planning, but much into project implementation. The implication is that the growth and profitability of ECs would remain low if there were no link between projects and business activities. ECs are concentrating on project implementation because there is immediate project income to be realised. There is a need for ECs to connect projects to business planning and through long-term business planning the sustainability of the business would be realised.

- **Quality implication**

There are quality challenges that emerged, especially in literature relating to the performance of ECs. The contractors need to know the implications of poor performance in quality for client, consultants and community satisfaction, and how it impacts on ECs' reputation in the industry.

There is inadequate training and supervision of the workers on sites and need for SBEs to provide training and supervision to improve the quality of work and reduce the chances of rework. Supervisors should have adequate knowledge of work if they are to add value to the completed work.

- **Legal and environmental implication**

Despite the existence of the health and safety policy to guide contractors, ECs lack commitment to a culture that would promote commitment to comply with requirements in the construction industry. If this culture is not corrected, the implication is increased costs to the economy in terms of rework, lost time, disruption, productivity loss and loss of much needed skills to the economy.

- **Strategic planning implication**

SBEs need to understand the practice of strategic planning in a manner that would lead to higher EC performance. Planning has emerged in this study as the key determinant of performance and the implication is that in the absence of a proper and comprehensive construction plan, parties to the business cannot be informed or held accountable for the timing and duration of their planned activities.

## **7.6 LIMITATION OF THE STUDY**

There are limitations that emerged during the development of the interview guide, the questionnaire and during the data collection and analysis phases. Thus, the following limitations should be kept in mind when interpreting the results of this study:

- The data generated in this study was limited to the perceptions of SBEs of emerging contractors registered with CIDB in Grade 2 in Gauteng, South Africa. As a result of lack of capacity in terms of available time and financial resources, the results could not capture the perceptions of other players, such as the main contractors, clients and consultants who have perceptions about the performance of the emerging contractors.
- The study relies on perceptions of SBEs, which might have been influenced by perceptual biases and cognitive limitations.

- The study employed a cross-sectional research survey strategy over a short period of time. Thus, it did not fully explore the emerging contractor business to determine performance trends over a long period. A longitudinal study is required to provide further insights into the perceptions of SBEs on the performance of emerging contractors.
- The results of the study could be generalised to the sampled contractors only, however, since the contractors operate in Gauteng the findings do not represent contractors in other provinces, and exclude medium and large contractors.

## 7.7 CONCLUSION

This research was set to assess the critical incidents encountered by emerging contractors and the determinants of business performance for emerging contractors registered with CIDB in Grade 2 in Gauteng, as well as to assess relationships among variables. The main findings of this study are summarised as follows:

- Most business experiences and incidents define direction and help to realise potential, challenges and lessons learnt, which in turn help to shape good or bad business practices.
- Most determinants that define the performance of ECs' businesses are related to project planning, project implementation and project performance.
- There is a significant relationship between project performance and business performance.
- The quantitative results showed that the perceptions of SBEs were defined as the sum of all the responses from the section on perceptions on determinants of emerging contractor performance. Investigating the correlation of perceptions and emerging contractor performance indicated that perceptions of SBEs positively affect ( $r = 0.254$ ) their business performance.
- There is no significant relationship between company performance and size of the company, or between business performance and race, gender ownership and

disability status. Nor was a significant relationship found between business performance and type of service offered, civil engineering and general building, or between business performance and type of project, government and private development. However, there is a significant relationship between age of owner and business performance.

### **7.7.1 Recommendation for further research**

The study has raised a number of issues for further research:

- Judged by the attention given to the emerging contractors by government, industry practitioners, CIDB and academicians the performance of ECs is at a centre stage of these entities, yet to date there has been no study that has developed or established a valid measurement instrument for ECs' business performance. As a result, stakeholders seeking to measure the performance of ECs have no specific guidance as to what precisely to consider. This study relied on varied performance measurement indicators, thus future research should focus on developing common performance measurement that could be used in the South African construction industry.
- Future research using similar techniques can be expanded to contractors of different sizes and with different levels of analysis in other provinces, as well as in other countries.
- It must be highlighted that the results of this study are based on the perceptions of SBEs of CIDB Grade 2 in Gauteng and may differ somehow from the perceptions of other SBEs elsewhere in other provinces of the country. There is an opportunity for further research in order to gain a wider perspective on the determinants of performance.
- The influence of business culture within the activity circumstances of emerging contractor has not been fully investigated, empirically. Hence, this might be another avenue for future studies.

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## APPENDICES

### Appendix A: Introductory Letter (sample)

Date .....

Dear Business Executive

My name is George Hove, a registered student with (Unisa) Graduate School of Business Leadership studying for my Doctor of Business Leadership degree. The topic of my research is:

**“PERCEPTIONS OF SMALL BUSINESS EXECUTIVES ON DETERMINANTS OF PERFORMANCE IN THE CONSTRUCTION INDUSTRY IN GAUTENG, SOUTH AFRICA”**

This research is directed at Business Executives of SMEs. Your company has been randomly selected to participate in the above mentioned study. It will be highly appreciated if you as the executive member of the business answer the attached questionnaire as honest as possible. Your response will help to define and determine the perceptions of Small Business Executives (SBEs) on the determinants of business performance. I hope your response will help us have a better understanding of what makes construction SME sector perform or not perform. Kindly complete the attached questionnaire and return same to [71759956@mylife.unisa.ac.za](mailto:71759956@mylife.unisa.ac.za) on or before 5<sup>th</sup> November 2013.

All your responses will be confidential and no one will have access to the information except the researcher. For further questions or clarifications, please contact the undersigned.

Thank you sincerely for your cooperation.

Yours faithfully

George Hove

DBL Candidate

Tel.: 082 310 3567, Email: [71759956@mylife.unisa.ac.za](mailto:71759956@mylife.unisa.ac.za)

## **Appendix B: Interview Guide (Sample)**

### **Instruction:**

Think of a recent time when, you as a business executive encountered an incident/s in your business organization that has facilitated the growth or shrinkage of your company and answer the following questions:

**Note:** Definition of an Incident = A situation / experience that facilitated / encouraged or discouraged your business performance.

1. Can you describe the incident?
2. Which of the following areas were most affected by this incident and how were they affected?
  - a. Financial impact
  - b. Manpower
  - c. Supply of material, equipment and machinery
  - d. Project delay
  - e. Quality
  - f. Legal and regulatory
  - g. Strategic planning
3. What positive outcomes did you experience as a result of this incident?
4. What negative outcomes did you experience as a result of this incident?
5. How did this incident affect your overall business performance?
6. From managerial perspectives, what lessons did you learn from this incident?
7. How could the incident be handled differently?

The End and Thank you very much for the time taken to answer this questionnaire.

## Appendix C: Research Questionnaire (sample)

### SECTION A

#### DEMOGRAPHIC INFORMATION OF THE RESPONDENT

*This section will require you to provide your personal profile as the key respondent that will help in interpreting the results of this survey. Please answer the following questions to the best of your ability and by ticking (✓) the relevant box.*

##### 1.1 Your Gender

Male	1	
Female	2	

##### 1.2 Your Age Group

Less than 20 years	1	
21 – 29 years	2	
30 – 39 years	3	
40 – 49 years	4	
+ 50 years	5	

##### 1.3 What is your ethnic group?

Black	1	
Indian	2	
Whites	3	
Coloured	4	
Other	5	

##### 1.4 Your disability status

Disabled	1	
Not disabled	2	

##### 1.5 Number of experience years of the respondent is .....years

##### 1.6 Your highest formal qualification

No formal education	1	
Pre-matric	2	
Matric	3	
Post Matric	4	
Degree level and above	5	

**1.7 What is your functional role in the business?**

Chief Executive Officer	1	
Chief Financial Officer	2	
Contract Director	3	
Marketing Director	4	
Other (Specify)	5	

**SECTION B**

**PROFILE OF THE SMALL SCALE CONSTRUCTION ENTERPRISE**

Now, I request you to complete the following questions about your company profile to the best of your ability and by ticking (✓) the relevant box.

**2.1 What is the Province where business is located?**

Gauteng Province	1	
Other		

**2.2 How long has your business been operating in the construction industry?**

years

**2.3 What is your CIDB registration / Grading?**

Grade 2	1	
Other (Specify)		

**2.4 What is the company size in terms of manpower by professional skills?**

*Skilled* (insert number)

*Unskilled*

*Total*

**2.5 Which of the following statements best describes your business profile? (Tick all that apply: where 1 apply and 2 do not apply).**

Black owned business	2.5.1		White owned business	2.5.2	
Women owned business	2.5.3		Man owned business	2.5.4	
Youth Owned business (<35yrs.)	2.5.5		Adult Owned business (>35 yrs.)	2.5.6	
Disabled – owned business	2.5.7		Other (specify)		

**2.6 What is the service provided by your organization? (Tick all that apply: where 1 apply and 2 do not apply).**

Civil Engineering (CE)	2.6.1	
General Building (GB)	2.6.2	
Other (specify)		

**2.7 Which construction projects are you involved in? (Tick all that apply: where 1 applies and 2 do not apply).**

Government projects	2.7.1	
Public / Private Partnership projects	2.7.2	
Private development	2.7.3	
Others (Specify)		

## SECTION C

### PERCEPTIONS ON DETERMINANTS OF SMALL SCALE CONSTRUCTION ENTERPRISE PERFORMANCE

*The following main categories have been identified as key challenges that affect the performance of small scale construction enterprises. These include (a) Financial challenges, (b) Manpower issues, (c) Supply of materials, equipment and machinery, (d) Project delays, (e) Quality challenges, (f) Legal and Regulatory factors, (g) Strategic Planning matters. Based on your experience, I am going to ask your views on these challenges. To what extent do you agree or disagree with the following statements on the critical role the challenges play on the performance of your business? From question 3 to 9, please tick (✓) in the appropriate box using the scale below:*

**Strongly agree (1) Agree (2) Neutral (3) Disagree (4) Strongly disagree (5)**

Statement	1	2	3	4	5
<b>3 The following financial challenges have negative effects on the performance of small scale construction enterprises.</b>					
3.1 Lack of collateral and assets.					
3.2 Late payments towards completed work by clients.					

3.3	Poor cash flow management and budget control.					
3.4	Tender pricing pressure from main contractors.					
3.5	High consultancy costs and fees e.g. accountants and architects erode profits.					
3.6	High registration and annual renewal fees.					
3.7	Payment of performance guarantee					
3.8	Payment problems experienced as a result of rework relating to faults (e.g. <i>project design errors, formwork errors, plumbing errors, mechanical and electrical works faults</i> ).					

<b>4 The following manpower issues have negative effects on the performance of small scale construction enterprises.</b>						
4.1	Shortage of experienced and competent labour force.					
4.2	High rate of labour disputes and strikes.					
4.3	Cumbersome administrative tasks such as UIF, workmen's compensation, skills development levy etc.					
4.4	Low labour productivity due to employee dissatisfaction and absenteeism.					
4.5	The skills obtained from higher education and the skills required in the construction industry do not match.					
4.6	Poor labour supervision and workmanship.					
4.7	Little capacity to deal with the complexities of modern projects.					
4.8	Contractors, subcontractors, clients and consultants do not work together as a project team.					

<b>5 The following problems relating to supply of materials, equipment and machinery have negative effects on the performance of small scale construction enterprises.</b>						
5.1	Lack of technical knowhow on quantity surveying of construction material.					
5.2	Regular shortages of materials on site.					
5.3	Excessive waste of material during the application process (e.g. unnecessarily thick plastering).					
5.4	Non-conformance of material to specification.					
5.5	Loss of material on site due to damage or theft.					
5.6	Deterioration of materials due to inappropriate storage.					

<b>6 The following problems relating to project implementation have negative effects on the performance of small scale construction enterprises.</b>						
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6.1	Poor planning techniques and failure to identify critical activities.					
6.2	Lack of project coordination among contractors, subcontractors, clients and consultants.					
6.3	Unplanned increase in the scope of work from the client.					
6.4	Unrealistic construction planned time by clients.					
6.5	Failure to commence project on time due to main contractor delays					
6.6	Omissions in the construction plans.					
6.7	Time spent waiting for samples, materials approval, site inspection; approval of quality control tests and results.					

<b>7 The following quality matters negatively affect the performance of small scale construction enterprises</b>						
7.1	Architectural drawings lack adequate technical information.					
7.2	Inability to interpret construction tender plans.					
7.3	Supervision of projects by unqualified project managers.					
7.4	Failure to deliver projects on time to the satisfaction of the client.					
7.5	Poor relationships between Small businesses and stakeholders.					
7.6	Inability to produce works of an acceptable standard					
7.7	Poor information flow and coordination between Small businesses and stakeholders.					

<b>8 The following legal and regulatory issues have negative effect on the performance of small scale construction enterprises</b>						
8.1 Compliance with health and safety regulations is a hindrance to small scale construction enterprises performance relative to:						
8.1.1	<i>High safety training costs.</i>					
8.1.2	<i>High safety induction costs.</i>					
8.1.3	<i>High costs on medical requirements.</i>					
8.1.4	<i>High costs on personal protection requirements.</i>					
8.1.5	<i>Expensive first aid requirements.</i>					
8.2	Cumbersome registration requirements and stringent government and private support systems.					
8.3	Government policies in the construction industry do not promote small scale construction enterprises.					
8.4	The grading system in the construction industry					

<b>9 The following statements relating to strategic planning have negative effect on the performance of small scale construction enterprises</b>						
--	--	--	--	--	--	--

9.1 Attention to long term vision					
9.2 Lack of clear objectives					
9.3 Weak management practices					
9.4 Little attention is given to Strategic planning					
9.5 Little attention is given to stakeholders' interest					

**SECTION D**

**ORGANIZATIONAL PERFORMANCE INDICATORS**

*Now I am going to ask you about your organizational performance indicators for the past 3 years. Please feel free to answer as many questions as you can to the best of your ability.*

**10.** Please indicate the level of performance on the following statements by ticking the appropriate number below:

1. Poor                      2. Good                      3. Very good                      4. Excellent

<b>OVERALL BUSINESS PERFORMANCE INDICATORS</b>	1	2	3	4
10.1 Compared to last year, how do you rate your current sales?				
10.2 How do you rate your sales stability in the last three years?				
10.3 How do you rate your profitability over the past 3 years?				
10.4 How do you rate your sales growth in the last three years?				
10.5 How do you compare your sales growth to your competitors generally?				
10.6 How do you rate owner satisfaction in terms of business performance?				
10.7 How do you rate owner satisfaction in terms of ability to keep to price quoted?				
10.8 How do you rate the market share growth of the construction industry in the last three years?				

**SECTION E**

**PROJECT PERFORMANCE INDICATORS**

*Now I am going to ask you about your project performance indicators for the past 3 years. Please feel free to answer as many questions as you can to the best of your ability.*

11 Please indicate the level of performance on the following statements by ticking the appropriate number below:

1. Poor                      2. Good                      3. Very good                      4. Excellent

<b>PROJECT PERFORMANCE INDICATORS</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
11.1 How do you rate the number of projects currently reflected in your order book?				
11.2 How do you rate the productivity of your workforce on the current projects?				
11.3 How do you rate the quality of the completed projects?				
11.4 How do you rate your project completion time?				
11.5 How do you rate the overall project cost management?				
11.6 How do you rate utilization of resources over the last three years?				
11.7 How do you rate operational control of the project over the last three years?				
11.8 How do you rate your client satisfaction with the finished product of projects executed by your enterprise over the last three years?				
11.9 How do you rate client trust / overall confidence in your business ability?				

**SECTION F**

**PERFORMANCE IMPROVEMENT**

12 Please rate the importance of the following performance factors in improving small construction enterprise performance results. Please tick (✓) in the appropriate box using the scale below:

Not important 1 2 moderately important 3 4 extremely important 5

<b>PERFORMANCE FACTOR</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
12.1 Development and communication of strategic plans					
12.2 Provision of upfront payment to small construction enterprises					
12.3 Development of management systems,					
12.4 Total commitment from major clients, construction industry board and government					
12.5 Adherence to client needs					
12.6 Improved Quality standards					
12.7 Changing the culture around the process and the team (designers, contractors and suppliers)					
12.8 Commitment to training and development					
12.9 Public and private sector need to consider and understand Small scale construction enterprises as serious players					

13. In the space provided below, please highlight other recommendations on what interventions may be needed to improve the performance of Small Construction Enterprises:

.....

.....

.....

.....

**The End and Thank you very much for the time taken to answer this questionnaire.**

## Appendix D: Email requesting to use CIDB Database

From: George Hove [<mailto:george@steelsource.co.za>]

Sent: 09 July 2013 08:11 AM

To: Rodney Milford

Cc: Segun Banjo

Subject: Request to conduct research on construction SMEs registered with CIDB

Dear Sir

I am a registered student at Unisa SBL studying for my Doctor of Business Leadership degree. My research topic is **“PERCEPTIONS OF SMALL BUSINESS EXECUTIVES ON DETERMINANTS OF PERFORMANCE IN THE CONSTRUCTION INDUSTRY IN GAUTENG, SOUTH AFRICA”**.

The aim of the study is to examine the determinants of construction SME performance registered with the Construction Industry Development Board (CIDB) in SA. The research builds on the theoretical framework presented and examines the variables identified in the literature. Primary data will be obtained by administering a questionnaire and an instrument guide among a selection of Small Business Executives (SBEs) in Gauteng. From the findings, performance enhancement frameworks would be developed. The specific objectives of the research study are:

- To assess the critical incidents that have been encountered by SBEs in the construction industry and their effect on business performance.
- To assess the perceptions of SBEs on determinants of business performance (Project and corporate) in Gauteng Province of SA.
- To assess the relationship between ECs project performance and ECs organizational performance as perceived by SBEs.
- To establish the relationship between the profiles of ECs' and their performance in the industry.
- To characterize the perceived measures that could assist in promoting high performance among ECs'.

By copy of this email, I kindly request for your permission to conduct my research, focusing on emerging contractors registered with your organization.

I have attached my research proposal and Unisa letter of identification for your consideration.

Should you require any information regarding my research, please feel free to contact the writer or my Supervisor (Prof. Banjo 0726298460).

Yours faithfully

George Hove (0823103567)

## **Appendix E: Approval letter to use CIDB Database**

From: Rodney Milford [<mailto:rodneym@cidb.org.za>]  
Sent: 18 July 2013 05:40 PM  
To: George Hove  
Cc: Segun Banjo; Rodney Milford  
Subject: RE: Request to conduct research at CIDB

Hi George

As requested, see attached contact details.

Please note:

The information is in fact available on the cidb website – and the cidb has merely provided you with a download

Please treat the information as confidential and do not distribute to anyone else

Please only use the contacts provided as per your request for research information.

Regard

Rodney Milford

Construction Industry Development Board (cidb)

Programme Manager; Construction Industry Performance

Cell: +27 82 892 9353

Tel: +27 12 482 7238

Fax: +27 86 687 4936

Web: <http://www.cidb.org.za>

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https://registers.cidb.org.za/PublicContractors/ContractorSearch?PageSize=10&PageNo=1&Region=00000000-0000-0

### Register of Contractors

[Disciplinary gazettes and case law reports](#)  
[National Treasury Database of Restricted Suppliers](#)  
[National Treasury Register for Tender Defaulters](#)

Select by Status:  (Registered head office address region)

Select by Region:  (Registered head office address region)

Select by Designation and class:

Select by CRS Number:  (Optionally list CRS numbers separated by commas, eg 100001,100002)

Select by Contractor Name:  (Optionally enter a partial or complete organisation name)

Select Potentially Emerging

Town / City Filter   (Reloading the town filter will clear existing searches)

Click on a CRS Number below to view contact details.

CRS Number	Contractor Name	Status	Grading	Sanctioned*
<a href="#">233302</a>	A M SHARP CIVILS	Active	6CE	
<a href="#">233302</a>	A M SHARP CIVILS	Active	6GB	

Records 1 to 2 of 2 Page Size:

Select fields you want displayed and then click 'Reload' (maximise this screen if the list appears out of alignment)

Contractor Name  Trading Name  B-BBEE Status  
 Status  Region  Construction Works Category

https://registers.cidb.org.za/PublicContractors/ViewContractor?contractorId=57346df-d-bcb2-4e21-ba71-9222d28c8dd9

South Africa News | New | Live - Tour de France 2013 | acer a501 as a modem for | View Contractor

https://registers.cidb.org.za/PublicContractors/ViewContractor?contractorId=57346df-d-bcb2-4e21-ba71-9222d28c8dd9

development through partnership

### construction industry development board

Home

#### Contractor Detail

**Contractor Detail**

CRS Number: 233302 Type of Enterprise: Closed Corporation

Contractor Name: A M SHARP CIVILS Registration Date: 2010/09/08

Trading Name: A M SHARP CIVILS Expiry Date: 2016/06/18

Status: Active

**Contractor Grades**

Grade: 6CE PE, Update Date: 2013/06/17

Grade: 6GB PE, Update Date: 2013/06/17

**Contact Particulars**

Contact Person: T Lehoko Telephone: 0164553344

E-Mail Address: thabel@amsharpcivils.co.za Fax Number: 0164553655

Mobile: 0729315161

**Contractor Head Office Address**

Speakers (USB): 50%

From: George Hove [<mailto:george@steelsource.co.za>]  
Sent: 02 October 2013 08:02 PM  
To: Rodney Milford  
Cc: Segun Banjo  
Subject: FW: Request to conduct research on construction SMEs registered with CIDB

Dear Sir

Following a pilot study conducted recently using email strategy; the response rate was poor indicating that the strategy is not effective. Based on that response, I have narrowed down my study to Gauteng Province focusing on Grade 2 (GB and CE) contractors.

I tried CIDB Website to down load the contractor contact details but could not come right.

I will appreciate if you could help me to access the relevant information (telephone and physical addresses) for the targeted contractors.

Thank you for your usual cooperation.

George Hove

0823103567

From: Rodney Milford [<mailto:rodneym@cidb.org.za>]  
Sent: 04 October 2013 10:39 AM  
To: George Hove  
Cc: [rodney.milford@cidb.org.za](mailto:rodney.milford@cidb.org.za)  
Subject: RE: Request to conduct research on construction SMEs registered with CIDB

George – see attached data

As discussed, please note:

This information must not be distributed to any other party; use of this data must be restricted only for your research purposes. Although this information is freely available and accessible on the cidb web, the information must be treated as confidential

Regards



*DEVELOPMENT THROUGH PARTNERSHIP*

Rodney Milford  
Programme Manager, Construction Industry Performance

SABS Campus, Blocks N and R,  
2 Dr. Lategan Road, Groenkloof, Pretoria, South Africa

PO Box 2107, Brooklyn Square, 0075

Tel +27 12 482 7238

Fax +27 86 687 4936

Cell +27 82 892 9353

Anonymous Fraud Line 0800 11 24 32

E-mail [rodney.milford@cidb.org.za](mailto:rodney.milford@cidb.org.za) [www.cidb.org.za](http://www.cidb.org.za)

## Appendix F: Sample Size Determination

The sample size determination was based on the perception of small business executives in the construction. Thus the sample size estimate was given by formulae adapted from Donner, Birkett and Buck (1981)  $n = (Z)^2(p(1-p))/(\delta)^2$

Where

$Z = 1.96$ (corresponding to 5% significance level)

$n$  = number of companies in the study

$\delta$  = the detectable difference or design effect.

$P$ = Proportion of companies with positive perception towards business (assumed to be 0.50 since we have no idea of perceptions in this population)

Using this information the sample size required is 385 companies. Since the contractors would all not respond to the questionnaire, this necessitated adjustments for attrition rates. We anticipate that 30% will not return the questionnaires. Adjusting for these gave a required sample size of 501 contractors.

## Appendix G: UNISA SBL Letter of identification

Graduate School of Leadership. University of South Africa. PO Box 392. Unisa. 0003. South Africa  
Cnr Janadel and Alexandra Avenue. Midrand. 1685. Tel: +27 11 652 0000. Fax: +27 11 652 0299

E-mail: [sbl@unisa.ac.za](mailto:sbl@unisa.ac.za) Website: [www.sblunisa.ac.za](http://www.sblunisa.ac.za)



26 June 2013

TO WHOM IT MAY CONCERN

This letter serves to confirm that Mr G Hove student number 71759956 is a registered student with (Unisa) Graduate School of Business Leadership studying for his Doctor of Business Leadership degree. The topic of his research is as follows:

"PERCEPTIONS OF SMALL BUSINESS EXECUTIVES ON DETERMINANTS OF PERFORMANCE IN THE CONSTRUCTION INDUSTRY IN GAUTENG, SOUTH AFRICA"

Mr Hove has fulfilled the initial requirement of the degree, however he is required to collect his data from your organization in respect of the thesis. Please kindly assist him with the necessary information he needs from your organization. All information given to him will be treated with utmost confidentiality.

For further enquiries please do not hesitate to contact the undersigned.

Yours sincerely



Professor AA Okharedia

Academic Director

UNISA Graduate School of Business  
Leadership Corner Janadel and  
Alexandra Avenues, Midrand

1686

Tel: (011) 652 0255/0375

## Appendix H: Sample Interview Guide

### Contractor B's interview script

**DATE:** 16 May 2013

**TIME :** 09H00

**Legend:** GH - Interviewer – George Hove

**B – Interviewee – Contractor B**

**GH:** Good morning Sir and thank you for accepting to participate in this survey. I am sure you are aware of the purpose of this interview following the letter that I emailed you last time.

**B:** Good morning, Okay. Yes.

**GH:** I have this table (Table given to Contractor B) and will appreciate if you could please provide the information as indicated in the table.

**B:** Is it compulsory to provide you this information.

**GH:** No! no!, it isn't but for my data analysis purpose, I suggest provide approximate information only, you don't have to give correct information if you are not comfortable.

**B:** Okay

Study area	Responses received
Your Gender	Male
Your Age Group	About 61 years
What is your ethnic group?	Black
Your disability status	Non
Your highest formal qualification	No matric
Your Profession / Area of Expertise	Brick Laying and Plastering acquired

	through experience
What is your functional role in the business?	Chief Executive Officer
What is the Province where business is located	Gauteng
How long has your business been operating	2 years
What is your CIDB registration / Grading?	Grade 2
What is the company size in terms of manpower by professional skills	I have about 45 unskilled and 2 Skilled
What is your business profile?	e.g. Black Owned (male)
What is the service provided by your organisation (tick that apply)	General Building
Which construction projects are you involved in? (Tick all that apply)	Government projects and Private development

**GH:** Thank you for this information. Now, can you think of a recent time when, you as a business executive encountered an incident/s in your business organization that has facilitated the growth or shrinkage of your company and answer my questions:

**GH:** Definition of an Incident = A situation / experience that facilitated / encouraged or discouraged your business performance.

**B:** Ok

**GH: CAN YOU DESCRIBE THE INCIDENT?**

**B:** In year 2011, I was sub-contracted by one big company that was building a hospital in Brits based on my talking to the boss of the main contractor. My work involved bricklaying and plastering. The hospital had 7 blocks and 4 floor levels on each block.

The terms and conditions of the contract were set in the contract that I signed. However, I did not have the legal background to fully understand the terms and conditions of the contract.

This was a big contract. I employed 2 foremen, 15 brick layers and 30 assistants. My foremen were skilled and competent people from Mozambique and Zimbabwe. Most of my bricklayers were from Mozambique and Zimbabwe. Some of the foremen had worked at major projects such as the Gautrain and Stadiums in 2009 and 2010 and were well experienced and skilled foremen.

The foreigners that worked for the contract had South African work permits valid for 5 years. These permits had been acquired when the South African government extended work permits to foreigners who had technical skills.

My employees were oriented and inducted according to the main contractor's policy and regulations. To a certain extent, I complied with safety and health requirements of this site. However, a substantial amount of money was spent preparing the safety file, buying Personal Protective Equipment (PPE), taking employees for medical examinations, transporting them, training safety representatives and buying first aid kit. Unfortunately, I did not have a budget for some of these expenses as I was not well conversant about these requirements when I got the contract.

I did not have systems in place for administrative tasks such as UIF, Workman's Compensation and Skills development levy. These systems would have helped me to administer different levies on behalf of the MEIBC such as admin levy, sick fund levy, provident fund levy, dispute levy, union membership levy, VAT and income tax and company tax and dividend tax. My annually renewal membership of semi-compulsory organizations such as CIDB were behind however, I tried to do my work legally.

Every day, there were many people at the gate looking for employment. Those Subcontractors who needed general labour could recruit from the gate. I had enough

skilled and competent people that I had recruited for this contract and mostly I had worked with them before.

To my surprise, after 2 weeks, the contracts manager told me to recruit 50% of local people into my contract. The contracts manager did not want to listen to my excuse and insisted that it was a requirement from the local councillor representing the community. All sub-contractors were required to comply with this request. The councillor had indicated that local people should benefit from any project generated from the area.

The implications of this requirement were that:

- I was forced to employ people that I had no knowledge about their work performance,
- The people did not have any skills, they had no experience and their competency was questionable,
- This was a political challenge that I found myself facing,
- Since I had no plan for this requirement, I had to incur extra costs of taking new people through medical examination, buying PPE as required by law, induction and training as per my contract.

I considered the cost implication of this requirement and the new relationship that I was going to develop with the new employees, I deliberately ignored this requirement. After all, it did not form part of my contract with the main contractor.

One day I found people demonstrating at the gate. They were demonstrating against sub-contractors who had not recruited local people. I lost 2 days working days as my employees could not enter the site. The contracts manager claimed that he had warned me and other sub-contractors and there was nothing he could do.

I contacted their community leader officer (CLO) who happened to be the security guard at the site. He did not want to talk to me. All he wanted was to know how many people from the community I had employed. Ironically, the recruitment had to be done through him. He knew very well that I had not complied.

I had no choice other than to drop some of my guys and employ local people. After a week, the new employees refused to take instructions from my foremen who were foreigners. My supervisors were from Mozambique and Zimbabwe. Most of the bricklayers were also from these countries and had artisan building certificates. The reporting structure became a challenge such that I had to be on site every day to see what was going on; otherwise, I would have put the lives of foreign supervisors at risk

Local employees continued with their demands, refusal to take instructions from my supervisors. The relationship among my employees deteriorated. Local employees accused my supervisor of over working them; they claimed their wages were too low; they were not given any benefits and all sorts of labour related claims. Eventually, these guys joined a union. Union representatives visited the site one day. More demands were made.

Throughout the duration of the contract, labour related issues continued. Demonstration and strikes eventually erupted that disrupted the programme. The main challenges that I experienced with employees as a result included:

- Employees coming to work late,
- Absenteeism at work without proper approval,
- Recurring sick leaves,
- Travelling allowance, some contractors brought their employees to work and my employees wanted the same benefit,
- Leaving work earlier than required,
- Refusal to work overtime when required,
- Organised regular demands of wage increase,
- Regular request for money for transport, and

Demonstrations and strikes had negative impact on my programme as well as the main contractor. The main contractor did not intervene to find an amicable solution to this problem.

One day, 4 of my employees were accused of being in possession of the main contractor's generator and an angle grinder. Even though there was enough evidence that the

employees had stolen these tools, to dismiss them from work was a problem as I had to go through many labour relations procedures:

- I had to do internal company procedure consisting of hearings and witnesses and a finding report.
- The employees appealed to the CCMA.
- To attend hearings there, I had to lose many days' work and if you are not on site, no work could be carried as the employees did not want to take instructions from the supervisors.
- To my surprise, employees who could speak perfect English suddenly demanded an interpreter. The case was postponed on several times because there was no interpreter.
- The interpreter was supposed to be independent but the process usually consisted of a conversation between the two for some five minutes and the English translation is usually no more than a sentence.
- Eventually, the employees asked for a ridiculous sum of money as compensation. Otherwise the case could have gone on and on. However, the commissioner told me to make a reduced offer to speed things up.

**GH: Which of the following areas were most affected by this incident and how were they affected?**

**GH: FINANCIAL IMPACT**

**B:** When I recruited local labour, I incurred financial cost that included payment of these employees to go for medical examination. Some of them failed yet I had to pay the service provider. Surely, the main contractor should have assisted in this regard by giving me advance payment which I would have paid back in stages. The main contractor could not assist.

- I found myself in a very tight situation regarding unplanned costs which required extra funding. I had to borrow money from non-financial sources because I did not have the collateral and assets required by the banks. I did not have the borrowing capacity that could be accepted by the banks. I found family and friends very helpful in financing my contract activities.

- When I made my monthly claims, there were challenges as the main contractor could not release payment immediately as a result I had to wait for some days before receipt of payment.

## **GH: MANPOWER**

**B:** There were labour misunderstanding and unrest that I experienced at this project as a result I lost many days of production due to labour related issues.

- About 60 people streamed on site each day when the situation was normal. However, during the violent strikes, work was halted for up to two weeks
- I employed foreigners who had South African work permits because the country did not have all the critical skills required, in my case, qualified bricklayers who had the ability to read the drawings. I had to attract foreign skills that had been regulated through government processes.
- I employed local people because I was afraid to contribute to xenophobic violence that had affected South Africa before. I thought of a statement from COSATU that says “business ignoring labour and immigration laws in employing foreigners must be reported” and I did not want my company to become the subject of discussion in union circles.
- The new employees made several demands that included provisions of a minimum wage for all hourly paid employees, standardized pay rates within the company, program that would facilitate training of local employees on site. The new labour requirement on this site did not go well with me as a sub-contractor because I had not budgeted for such demands. With this challenge, I said to myself the project would not be delivered on time, on budget, safely and to the required quality standards.
- There were poor labour relationships that emerged and this did not set effective partnership among stakeholders as there was no improved stability and productivity on site. Employee unrests and remobilization became a daily problem on site.
- I did not want to put the lives of my supervisor at risk. As a result, I took the responsibility to manage and supervise employees on site which should not be my responsibility in most cases.

- In order to improve relations on site, several meetings were held with the employees and unions to try to resolve the stalemate on site.
- There was an impression from workers on site that subcontractor management was causing strikes as a result of poor labour management. The allegation was that management were failing to manage their employees,
- I introduced weekly meetings on-site between the employees and myself. The aim of these meetings was to review progress and identify issues which each party needed to resolve. Initiatives to resolve these issues were somehow agreed upon. The new communication system improved to reduce bottlenecks between employees and my supervisors.
- Management and supervision of different sub-contractors at the site were affected by this incident mainly because the employed local people were not competent enough and caused much industrial unrest.
- Even though I lost some of my good supervisors and foremen, I managed to retain most of the team members who had shown dedication throughout.

#### **GH: SUPPLY OF MATERIAL, EQUIPMENT AND MACHINERY**

**B:** The material such as bricks and plaster sand were supplied by the main contractor. However, as the sub-contractor responsible for this material, it was my responsibility to ensure appropriate usage of the material. On several occasions, the main contractor complained of thick plastering and this created serious shortage of cement and plaster sand on site. One day, the main contractor visited my work area and saw mortar that had been left unfinished by my employees the previous day. I was accused of this and was given me a claim for wasting material on site.

- There were cases of stolen bags of cement on site. However, I challenged the main contractor that he must use professional security that would be able to secure the site. Any form of pilferage on site was not my responsibility because the security was provided by the main contractor.
- The employees were reckless in the usage of material. Some cement bags were opened were left half full. The cement lost its conformance after sometime. The main contract charged me for the wastage.

- Whenever industrial action took place, this resulted in damage to vehicles and equipment, bricks, reinforcing steel, cement window and door frames being looted. More than 10 employees were injured in the process.

## **GH: PROJECT IMPLEMENTATION**

**B:** As a result of labour issues, I experienced several stoppages which were recorded on site and these included:

- Demonstrations and strikes on site which lead to more than a week's work stoppage. Labour unions caused many disruptions which delayed the project. The management of labour relations was very poor on this site because employee representatives had many demands that affected planning.
- Absenteeism was recorded almost every day and this slowdown the programme,
- When attending labour issues at CCMA, the productivity of employees got reduced and this affected the programme.
- The main contractor though he knew what was happening, and see the labour issue as a major element in the problem. He wondered what fines and penalties could be extended to the sub-contractors for the delays caused.
- Even though, the main contractor did not claim against some of the sub-contractors for the delay, the delay caused project costs to go up though I do not have the figures of what the main contractor incurred. This also increased the owner's (Government) development costs to go up. However, organized labour activities at the site were the main causes of delay in this project.
- Salary and wage issues were never resolved as employees kept on demanding more increase in wages.
- Effectively, the project was almost 4 months behind schedule and community demanded that the hospital should be completed soon.
- Productivity on this site was poor and this was a result of the shortage of skills, that's why I had resorted to the employment of foreigners.

## **GH: QUALITY**

**B:** My controls and systems were disrupted when I was forced to employ local employees who did not have the skills and knowledge about construction.

- In as much as I tried to control quality, there were many defects that emerged as a result of the short corners that were taken by employees. I find out that working with people that you do not know creates problem. I am being blamed as a small contractor yet the damage was done through the employment on community employees. Anyhow, some defects I fixed while some were not easy to fix.
- Engineers noticed some defects which were attributed to the use of non-load bearing bricks instead of load bearing bricks specified on the construction drawing.
- I took full responsibility for the poor quality of the product. I communicated this issue to the main contractor and we agreed to work together to fix most of the defects.

## **GH: LEGAL AND REGULATORY**

**B:** There were many issues at this site that I resolved at CCMA level. This was the only way I could resolve a number of disputes between unions and employees.

- It was easy for the authorities to demand employment for local employees. What they missed was the appropriate communication where the issue should have been articulated and stipulated in the tender document. There were implications as a result of this incident, for example the safety and health compliance was compromised. This incident had a negative effect on the profitability of my business.

## **GH: STRATEGIC PLANNING**

**B:** I never expected to face such a challenge on a construction site. In most cases, when I get a contract, I leave my competent and skilled employees to do the job and all I do is to make sure my targets are met. I always give my employees set forecasts which they work to achieve.

- In this incident, my plans were affected because I was forced to employ people who lacked knowledge, people who had no skills of the industry; they could not read the drawing and had to be taught on almost everything.
- I was so committed to deliver the project on time as per programme. When I tendered for the job that's when I put my resource together to ensure my capacity was sufficient for the job. That capacity building was somehow affected by the circumstances that emerged on the site.
- I spent most of my time on this project as a result I did not have much time to look for other jobs. When we finished this job my order book had very reduced orders. It clearly shows that I never had sufficient time to focus on the future of my business.

**GH: What positive outcomes did you experience as a result of this incident?**

**B:** The day I completed the project, I was excited that I had shown determination and resilience in the challenges that I encountered. In future, I know how to deal with South African labour issues.

- Payment of employee's competitive wages must always be the norm within every company.

**GH: What negative outcomes did you experience as a result of this incident?**

**B:** I felt bad on this site with my ability to supervise and manage the labour issues. It was extremely poor because there was no control of employees.

- I faced many challenges and setbacks at this site as a result of labour unrest. The labour problem was difficult to resolve and became a daily activity. What worried me was that on a number of times labour would become violent.
- The strikes and demonstrations that emerged from this incident appeared in most of the media circles. As a result the perception created to potential investors about labour relations in South Africa was critical to me. This need to be carefully managed at all times. From a Small business perspective, most of my colleagues are willing to make things work in a new space in other stakeholders show interest thereof. The violent activities at this site were completely unacceptable.

**GH: How did this incident affect your overall business performance?**

**B:** My cost benefit analysis was affected. I had to incur extra health and safety expenses that I incurred and this squeezed my profitability. I did not plan to recruit employees that I would take for medical examination, training and procurement of PPE.

- I lost many productive days attending to labour issues. There were many stoppages on site as a result of misunderstandings among employees which I had to attend to.
- The demonstrations and strikes lasted for almost two weeks. There was heavy cost that eroded my profitability.
- Many tools were vandalised and stolen and I had to replace them at a cost.
- As a result of poor control over staff on site, this had serious effect on the quality of work that I produced. My quality control systems were affected due to the employment of local employees resulting in remedial work being done. This also strained the financial resources of my company. This had a detrimental effect on my business with low profit margins covering high costs.

**GH: From managerial perspectives, what lessons did you learn from this incident?**

**B:** As a result of this incident, I put management controls mechanisms in place that included employment of labour experts in my company, up to date records where the details of employees are recorded, sticking to labour laws.

- Main contractor took responsibility of labour issues on site by employing CLO. The relationship between employees and sub-contractors was poor and had a significant effect on the main contractor's performance. Unions were targeting sub-contractors and made demands from us sub-contractors. It is important for the main contractor to step in and seek to rebuild the relationship among all parties. I noticed on this site that some of us (sub-contractors) had no enough capacity to manage their employees. They really need back-up and this can only come from the CLO main contractor.
- It is important for the main contractor to ensure that all societal concerns have been included in the contract so that as subcontractors you are aware of these issues.
- As the business executive, I spent most of my time on this site in order to make sure that things were running smoothly and to unlock all bottlenecks.

- I condemned the violent nature of the strikes and demonstrations as this affect my business. However, the problem is what can be done to avoid similar incidents in future.
- There are no skills required in the industry. In as much as I liked to employ local people, I found them without the technical skills required in construction industry. From management point of view, it would be ideal if the government invest money within companies to train local people so that the pool of artisans could be improved. Technical colleges could be set where the technicians can further their skills.

**GH: How could the incident be handled differently?**

**B:** Surely, no one is against employment of local labour. What should have happened from the beginning was to include the close in the tender document. This would have allowed sub-contractors to plan accordingly. Local labour could have been employed from the beginning. There was lack of communication and understanding as to the handling of local community. An impression was created that sub-contractors do not want to employ local people and this created bad impression.

- All the skill and foreign qualified employees should not have been targeted as they assisted to train and party skills to local people.

**GH: The End, Thank you very much for the time taken to answer this interview guide.**