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Viability of business models to promote enterprise development within the South African construction sector

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VIABILITY OF BUSINESS MODELS TO PROMOTE ENTERPRISE DEVELOPMENT WITHIN THE SOUTH AFRICAN CONSTRUCTION SECTOR

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A research report submitted to the School of Civil and Environmental Engineering, Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg in the partial fulfilment of the requirements for the degree of Master of Science in Engineering

Johannesburg

2020

Declaration

I declare that this dissertation is my own, unaided work. It is being submitted for the Degree of Master of Science in Engineering in the University of the Witwatersrand, Johannesburg. It has not been submitted before, for any degree or examination in any other University.

Signed 

Michael Pappas

17th day of April 2020

ABSTRACT

There have been previous studies conducted into the promotion of enterprise development through interventions implemented on small, medium, and micro enterprises (SMME) from the "outside-in". These interventions look into legislation, government led programmes, mentorship, incubation, social franchising, management contracting, and a client focused approach. The purpose of this research project is to assess the possibility of promoting enterprise development from provisions within the SMMEs. The review of literature from European small businesses directed the research into the internal provision that promotes the success and sustainability of a contractor as the business model. The assessment of the role and impact of the business model can lead to the determination of its ability to promote enterprise development. The research gains insight from the business models of companies gained through two means: Quantitative: Existing data base on SMMEs, and Qualitative: Interviews conducted to determine the business model elements, and ability to promote development. The Framework Method was applied to synthesize operational factors of the companies and the business model elements to provide a structured approach for the management of the business.

The outcome from the analysis is a conceptual business model that can be generalised. The generalised business model indicates that it can be used on SMMEs external to the investigation and have an effect on enterprises. The conceptual model has key findings and recommendations for new and existing enterprises. There are key recommendations to structure the organisation in the following areas: Value creation, market influence and organisation, internal capacity, competence and assets, economic related elements, and the competitive strategy and innovation. The assessment of each of these areas form elements of the business model. The formulation of these elements to promote development is recommended. The implementation of a business model is determined to have positive effects on the companies interviewed. The structuring of operational factors of companies to maximise opportunity to create value is enhanced by the awareness of business model elements. The structured approach to formalising the business model and its potential to organise the enterprise in a favourable position enables success and sustainability.

Keywords: Enterprise development, business models, construction

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LIST OF ABBREVIATIONS AND ACRONYMS

B-BBEE	Broad-based black economic empowerment
BOQ	Bill of Quantities
CDP	Contractor Development Programme
CETA	Construction Education and Training Authority
CIDB	Construction Industry Development Board
ECSO	European Construction Sector Observatory
EU	European Union
GEAR	Growth, Employment and Redistribution
Gov.	Government
HREC	Human Research Ethics Committee
IECDM	Integrated Emerging Contractor Development Model
JBCC	Joint Builders Construction Contract
MC	Management Contracting
NCDP	National Contractor Development Programme
NEC	New Engineering Contract
PAIA	Promotion of Access Information Act
RDP	Reconstruction and Development Programme
SA	South Africa
SME	(Europe) Small and Micro enterprises
SMME	(South Africa) Small, medium, and micro enterprises
SOE	State Owned Enterprise
TLB	Tractor-loader-backhoe
TQM	Total Quality Management

1. INTRODUCTION

1.1. Background

Under the apartheid regime in South Africa the freedom of access to markets was limited. Post-apartheid South Africa gave effect to programmes and supporting legislation that attempted to facilitate transformation and enable companies that were previously not permitted to participate in economic activities an entry to the market place. One such piece of legislation is the Preferential Procurement Policy Framework Act 5 of 2000. The Act gives effect to section 217(3) of the Constitution of South Africa of 1996 to implement fair procurement to promote transformation and enable companies that were previously not permitted to participate in economic activities an entry to the market place. A regulatory body was necessary to guide development to achieve the outcomes of the new constitution. The Construction Industry Development Board (CIDB) was set up, and provided authority through legislation in accordance with Act 38 of 2000 to provide a regulatory and development framework to promote that progress of the industry. The CIDB's mandate is to promote:

- Uniformity in construction procurement.
- Efficient and effective infrastructure delivery.
- Construction industry performance improvement.
- Development of the emerging sector, including industry transformation; and
- Skills development.

(CIDB Act 38 of 2000)

The mandate by the CIDB to develop the emerging sector and promote industry transformation enables the entry point for emerging contractors to the construction industry.

There have been various provisions put in place to provide an enabling environment for emerging contractors, which include legislation, financial assistance, mentorship, training, and programmes. Contractor Development Programmes (CPD) were initiated to provide support for emerging contractors entering the construction industry. The CIDB

established the National Contractor Development Programme (NCDP) to ring-fence opportunities of work for emerging contractors and target their development through key activities such as:

- Implement procurement strategies.
- Develop a data base of registered contractors and projects to track progress.
- Facilitate financial interventions, i.e. surety provision, financial management including ensuring timeous payments, establish links between contractors and financial institutions.
- Facilitate quality assurance.
- Standardise designs and specifications.

(NCDP: Summary Framework, 2011)

Research into small contractor development was initiated with the study into the provision of infrastructure within Soweto in 1995 (Watermeyer, 1995). The study investigated the development of local entrepreneurs within a structured Contractor Development Programme (CDP). The programme employed a labour-focused approach to enable the entry of small business that did not have resources (machinery and equipment in particular) with a development team to provide support in relation to management, technical and financial aspects. The objective was to transfer knowledge to local entrepreneurs to develop potential to execute construction works. The study into the performance evaluation of CDPs found that beneficiaries were satisfied, but noted upgrades were required to promote sustainability (Dapaah, et al., 2017). The study further concluded mentorship programmes and training for contractors is an apparent solution to improve CDP performance (Dapaah, et al., 2017).

The mentoring of emerging contractors is an approach in enabling the development of enterprises to achieving socio-economic deliverables. The benefit of mentoring has been assessed through case studies in the Eastern Cape (Hauptfleisch, 2007). The case study assessed the application of the Integrated Emerging Contractor Development Model, it was showed that the key factor to success of the study was the role of the mentor. The mentor is an external influence to assist the emerging contractor.

As the monitoring of emerging contractors' performance and the achievement of development goals were assessed, the expansion of analysis was initiated into alternate forms of intervention. The option of implementing a business model that has been successful in promoting economic development in South Africa to the development of companies engaged in activities within the construction industry was assessed. Franchising was investigated as a model to achieve socio-economic goals within the provision of operational and maintenance projects at water service facilities in the Eastern Cape (Wall, 2013). The model was run over three years from 2009 to 2012. The pilot study looked into social franchising and the effect on delivering projects and providing an effective financial framework to enable development of contractors.

Research into management contracting has been conducted to investigate the impact on developing enterprises. The study of the implementation of maintenance and upgrading projects within the Western Cape Education Department in 2014 investigates an alternate approach to promoting the targeted progress of contractors (Watermeyer & Laryea, 2018). The study assesses the impact of appointing a company as a single point to manage a range of smaller companies to achieve project deliverables.

The most recent approach to achieving enterprise development is the focus on the role of the client. The successfully completed university construction projects implemented by the Wits management team (Laryea, 2019) have given rise to the Infrastructure Procurement and Delivery Management (IPDM) guideline. The guideline is aimed at achieving infrastructure project outcomes from the role of the client and procurement strategy, to delivery management, project governance and value for money.

The various research studies present different approaches to achieving enterprise development:

- Legislation and government led programmes.
- Mentoring and incubation.
- Social franchising.
- Management contracting.
- Client focused approach.

The approaches have a common connection in assessing the development of contractors by tracking interventions from external sources that impact on the success of the enterprise. This is traditionally an "outside-in" approach. There is opportunity in research of the development of contractors from assessment within companies that are targeted. This is an analysis of the internal attributes of emerging enterprises and their ability to progress. This assessment is a shift in responsibility from external enabling factors to create a climate for development to the internal factors of a company that can be managed and structured in a manner that can promote the companies development.

The distinction is made for the purposes of this study between growth and development. The development of the contractor is the ability to progress in terms of capacity and not necessarily size. Growth is seen as only expansion in size. This study looks to development of companies. The Construction Industry Development Board Act (Act 38 0f 2000) defines an "emerging enterprise" as an enterprise which is:

> *Owned, managed and controlled by previously disadvantaged persons and which is overcoming business impediments arising from the legacy of apartheid.*

The "emerging sector" is defined as that sector of the construction industry which comprises emerging enterprises. The contractors investigated in this report are emerging enterprises within the construction industry. The investigation into enterprises requires the reference to all applicable legislation. The National Small Businesses Act of 1996 and the Preferential Procurement Policy Framework Act 5 of 2000 make reference to enterprises, with further differentiation in accordance with size: small, medium, and micro enterprises (SMME). SMMEs will be referenced in this report to expand on the size of the emerging enterprise. The SMME background is expanded under Section 2.1.

1.2. Research objectives

The background into contractor development indicates the various approaches to create an enabling environment for SMMEs. The approaches are focused on measures implemented from the "outside-in". The extent of literature on "outside-in" measure highlights the importance of this approach. This research aims to assess an alternative approach that will work in synergy with these measures in order to promote enterprise development. The research will assess an approach that can work with the various "outside-in" measures from a different perspective. The investigation into how enterprise development can be promoted from within the SMME is proposed as the alternate perspective. This creates the need for this investigation to assess an approach that can be implemented from within an enterprise to promote its development. The objective of this investigation is to determine if the internal approach to enterprise development can lead to positive results and is a viable option.

There is limited research into internal approaches within the South African construction industry, and hence the scope of the study is broadened beyond South Africa in order to determine a means to realise the research objective. The review of literature in Europe introduced the role of business models in construction companies (Pekuri, et al., 2013). The assessment of the role of business models in South African construction companies has not been conducted. The investigation into business models in South African construction companies can converge with the understanding into internal aspects of enterprises. The review of South African SMMEs with the business model as a framework is proposed to determine impact on internal aspects of the enterprise. The first step is to determine the role of the business model. Once the role of the business model is determined in relation to the South African construction industry, the impact can be addressed to determine if it has a positive ability to promote the development of the enterprise is possible. The outcome will enable the link between business models and enterprise development. The link between the two will determine the viability of business model, as an internal approach to improve the success of a SMME.

This can be summarised in the following research question:

Are business models implemented within an enterprise a viable option to promote enterprise development within the South African construction industry?

1.3. Scope of study

This study looks to the promotion of enterprise development from the assessment of businesses from an internal perspective. In order to assess the internal attributes that enable development, the research is conducted into the various business models of contractors engaged in the construction industry. The insight gained from the internal operations of the business will enable the determination if a business model exists, the role of the business model, and impact. The study will work towards developing a conceptual business model with the findings from the investigation. The extraction of a conceptual business model is intended to generalise the approach from different companies to determine if a template can be generated for future use with other SMMEs. The generalising of a business model that can be implemented on other enterprises outside of this investigation will determine the viability to be used towards promoting enterprise development within the industry. The study seeks to determine viability of business models, and not propose different models that can be implemented in specific cases.

1.4. Importance of study

The construction industry plays an important role in the socio-economic development of any nation (Windapo & Cattell, 2013). The study looks to promoting development of enterprises within the construction industry to achieve socio-economic progress. The enabling factors to promoting enterprise development from the "outside-in" have been investigated, however the investigation into the internal approach, specifically making use of business models to guide the assessment, has not been investigated in South Africa. The study may yield insight that can be beneficial to enterprise development and promote the socio-economic progress of the construction industry.

1.5. Overview of report structure

The point of commencement of the report is a literature review in Chapter 2 that is structured in a manner to obtain inputs that can be related to the analysis of the data of this investigation. The literature review works towards an investigation of a business approach to enterprise development in order to gain insight on business models. The intention is to extract elements of business models that can be used to frame the investigations of companies in this study. The next step of the literature review is a review of business models in previous studies in order to gain insight to the factors that were tested. These factors tested in these studies will be used in this investigation to extract outcomes from the companies.

The method used in this investigation is detailed in Chapter 3. The data collection for this investigation will be conducted in two methods: quantitative and qualitative. The quantitative analysis is conducted first as a first level assessment to be further expanded through the qualitative assessment. The data from both methods is consolidated and an analysis conducted in the framework of a matrix with the operational factors and business model element used to enable a relation between the two aspects that can lead to a conclusion.

The data analysis in Chapter 4 assesses the operational factors, and the discussion in Chapter 5 expands on the business model elements, and merges the two aspects to present a conceptual business model.

The conceptual business model is a means of assessing viability of the business model to promote enterprise development, which is detailed in Chapter 6. The Conclusions and recommendations for further research are also presented in Chapter 6.

2. LITERATURE REVIEW

2.1.SMME background and need for enterprise development

Post-apartheid South Africa gave effect to legislation that was promulgated to ensure transformation and equal representation. In order to create an enabling environment for businesses to enter the industry there are two key Acts that are relevant: The National Small Businesses Act of 1996 (and subsequent amendments 2003, 2004) and the Preferential Procurement Policy Framework Act 5 of 2000. These two Acts identify an SMME and provide a means in which an enabling environment can be created for SMME to enter the industry in order ensure transformation. Small enterprises are defined in Government Gazette 377 of 1996 as follows:

> *Small enterprise means a separate and distinct business entity, together with its branches or subsidiaries, if any, including co-operative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the Schedule and classified as a micro-, a very small, a small or a medium enterprise by satisfying the criteria mentioned in columns 3, 4 and 5 of the Schedule.*

The Schedule referenced in the extract above outlines the key elements that define an SMME for each industry. An extract of the Schedule is presented in Table 2-1 for the construction industry only:

Table 2-1: Classification of SMMEs for the construction industry (National Small Business Act, 2004)

Sectors or sub-sectors in accordance with the Standard Industrial Classification (SIC)	Site or class	Total full-time equivalent of paid employees (less than)	Total annual turnover (R million) (less than)	Total gross asset value (fixed property excluded) (R million) (less than)
Construction	Medium	200	26.00	5.00
	Small	50	6.00	1.00
	Very small	20	3.00	0.50
	Micro	5	0.20	0.10

The importance of promoting enterprise development amongst SMMEs is highlighted by the potential contribution to the economy that can be made by SMMEs. As consolidated by Windapo, et al (2019):

> *In low-income countries, small and medium enterprises (SMEs) and informal enterprises contribute over 60% of the gross domestic product (GDP) and over 70% of the total employment, while in middle-income countries, they contribute 70% of the GDP and 95% of the total employment (Katialem et al., 2018; Kongolo, 2010; Sani et al., 2018; Zafar and Mustafa, 2017). In South Africa, SMEs account for over 34% of the total GDP and about 66% of the total employment (Fiseha and Oyelana, 2015; Laryea, 2013; Nieuwenhuizen, 2019). This implies that the development of SMEs is fundamental to the development of any economy.*

The potential to add value to the economy is clear from the more developed countries. If the potential of the SMMEs can be harnessed, an economically sustainable solution to achieving transformation can be achieved. The investigation into these more developed

countries can provide insight to improving the performance of SMMEs in order to enable higher levels of economic contribution.

2.2.Assessment of the European approach to the development of small enterprises

The context of the study has been considered in relation to the South African research conducted within the construction industry and approaches that have been prominent. These studies set the background to this research report. The insights gained from research conducted abroad expand the different approach and expand on alternative interventions investigated in this research. The research investigated outside the South African scope is assessed from European case studies. The European Union (EU) construction industry has a well-established small contractor market that can provide insight to alternate interventions for the South African emerging contractors in order to promote enterprise development.

The EU has established a programme in 2014 for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) which has been established and is planned to meet targets set for 2020. There is a planned budget of EUR 2.3 billion to achieve deliverables across a range of industries which includes the development of small and medium-sized enterprises (SME). The European Construction Sector Observatory (ECSO) is an initiative under COSME to implement deliverables within the construction industry. The ECSO has established five priorities to guide focus to the 2020 target. The priorities are:

1. Financing and digitalisation.
2. Skills and qualifications.
3. Resource efficiency.
4. Regulatory framework.
5. International competition.

(ECSO mandate, 2014)

The ECSO maintains contemporary analysis of the construction industry across the 28 countries within the EU and an annual report is published indicating the performance of

SMEs. Table 2-2 is an extract from the total number of SMEs and large enterprises to reflect only the data for the construction industry.

Table 2-2: EU Construction Industry SME data (ECSO SME Performance Review, 2019)

	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Large companies	All enterprises
Number of enterprises	3 264 825.0	203 159.1	33 155.6	3 501 139.9	6 656.2	3 507 797.2
%	93.1%	5.8%	0.9%	99.8%	0.2%	100.0%
Value added value in € (trillion)	169.3	143.4	149.1	461.8	351.6	813.4
%	20.8%	17.6%	18.3%	56.8%	43.2%	100.0%
Employment number (in 000)	4 953 702.3	3 372 706.0	2 855 817.1	11 182 225.6	5 656 118.5	16 838 343.2
%	29.4%	20.0%	17.0%	66.4%	33.6%	100.0%

The construction industry % of the total SME market share for the following key indicators:

- Enterprise Number: 14.30 %
- Value Added: 11.10 %
- Employment number: 11.80 %

The data indicates a very productive SME market in the EU. The operating conditions in the EU are different to South Africa, however the assessment of literature applicable to the success of SMEs in the EU will enable key findings that can be applied to the South African construction industry.

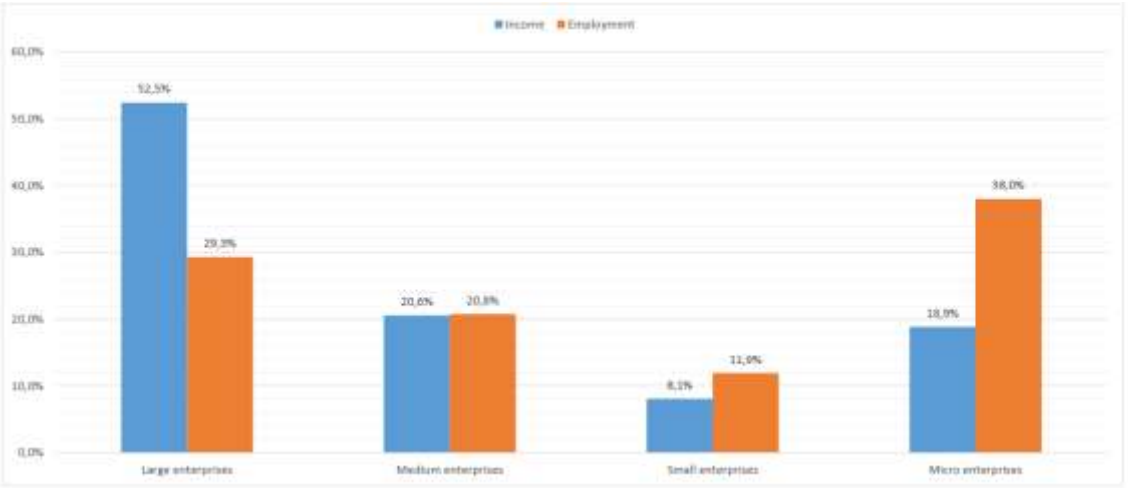

Figure 2-1: Income and employment (% contribution) by enterprise size in the construction industry (StatsSA Construction Industry Report No. 50-02-01, 2017)

The South African construction industry report (StatsSA, 2017) indicates a total of 47.6% contribution between micro, small, and medium enterprises to the industry. The concern is indicated by the assessment of the contribution over time. The small to medium enterprises contribution to the construction industry was 61% in 2015 (StatsSA Quarterly financial statistics, March 2019). This indicates that the contribution is decreasing and the development of enterprises is not improving SMME performance. This is initiates the need to investigate further interventions to promote enterprise development.

2.3. The necessity of further intervention required to develop enterprises in the South African construction industry

The research into enterprise development in the South African construction industry is limited, however there have been a range of investigations into the need for intervention. The interventions generally assess the framework enabling the performance of SMME through different approaches, i.e. preferential procurement implementation. The different approaches are described in the introduction, connecting to the timeline for each approach. The CIDB publishes an annual report on progress within the construction industry.

Table 2-3: Extract from CIDB Annual reports from 2018, 2017, and 2016 (contained summary) for the % of contractor upgrade in levels (CIDB Annual Report, 2018, 2017, and 2016)

	% Contractor upgrades				
Grades	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014
9		59%			
7 and 8	21%	82%	0%	0%	0%
5 and 6	28%	76%	6%	36%	38%
2 to 4	28%		7%	27%	72%
1			10%	52%	50%

Table 2-3 above is an extract from the CIDB annual report from each year. The data analysis is for Civil Engineering (CE) designated contractors, who generally engage in projects associated with infrastructure development. General Building (GB) is the other designation for contractors generally engaged in domestic or residential construction on a smaller scale which is not assessed in this study. The levels assessed are from 1 (entry level) to 9 (highest contractor designation – a turnover of R9 million per annum). The data does not display a clear trend of how the contractors are progressing up the levels of assessment from year-to-year. The lack of growth is indicative that further investigation into alternate interventions is required.

2.4.Outcomes from the previous studies (programme approach)

The integrated emerging contractor development model (Hauptfleisch, 2006) is presented in Figure 2-2:

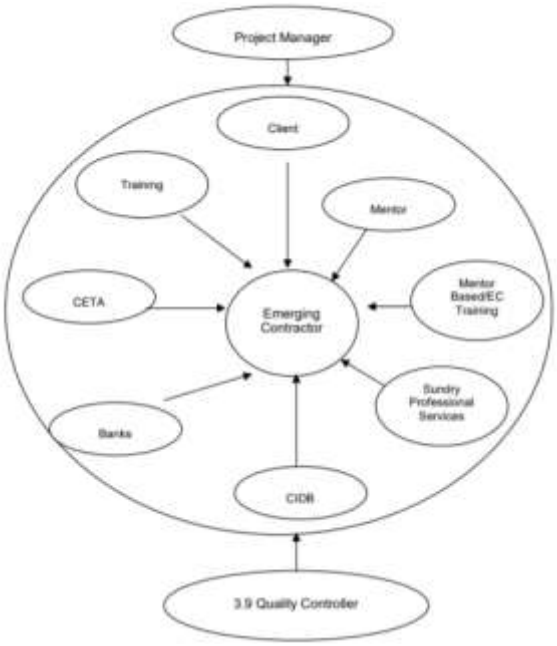

Figure 2-2: Integrated emerging contractor development model (IECDM) (Hauptfleisch, 2006)

The research conducted into the feasibility of the IECDM is intended to promote enterprise development. A programme developed in conjunction with the Eastern Cape Development Corporation through projects in the Eastern Cape was conducted to investigate the IECDM viability (Hauptfleisch, 2006). The objective of the model was to provide an integrated approach to create an enabling environment for SMMEs to succeed. The model consolidates stakeholders that are role-players in the construction companies' ability to perform. The CIDB mandate is acknowledged as a governing principle and the model extends further to implement concepts presented in the CIDB guidelines. The Construction Education and Training Authority (CETA) is the regulator of the Skills Development Act (Act 97 of 1998) within the construction industry. The model includes CETA's training requirements to the progress of the companies connecting enterprise, social, and technical mandates. Financial aspects are also considered in the model through the acknowledgement of the roles banks and the client play. The overall model is managed by an external project manager and the model has key reliance on the inclusion of a mentor to facilitate the development on companies. The conclusions from the programme are as follows:

- The model requires endorsement by a governing body that can enforce the implementation of the consolidated approach. The governing body can be the

local municipal council, regional Department of Public Works and Roads. The level of governing body will determine the scale of the model.

- The key principal of the model is based on the concept that it is a training programme with the final objective of creating a sustainable construction business. The focus is on training during implementation with enterprise development assessed as an outcome.
- The success of the model requires financial investment in training, which needs to be acknowledged by all stakeholders.
- The role of the mentor is key in transferring knowledge and the success of the programme.
- The focus on quality is managed by implementing total quality management (TQM).

(Hauptfleisch, 2006)

The role of the project manager to consolidate stakeholders is not unique to the IECDM. The project manager role is further expanded in the application of management contracting. The management contractor model is presented in a comparative analysis to a traditional public sector model (Watermeyer & Laryea, 2018). Research was conducted in 2014 through the case study involving the implementation of 122 projects for the Western Cape Education Department executed using the management contracting (MC) model in comparison to 35 projects using the traditional model. The aim of the study was to evaluate and compare the two key indicators: project performance and professional costs associated with the execution of the project. The key conclusions are as follows:

- The implementation of MC yielded positive results in the case study. Table 2-4 indicates the comparative assessment between the two implementation models.

Table 2-4: Comparative analysis of projects between two implementation models (Watermeyer & Laryea, 2018)

Variable	Traditional model implemented by the Department of Public Works	Management contracting (MC) model
Time period of projects analysed	2015 – 2016	2014 – 2016
Number of completed projects analysed	35	122
Form of contract	JBCC, NEC	NEC
Pricing strategy	BOQ, price list	Price list
Contingencies	Yes	Yes
Provisional allowances	Yes	Yes
Total value of package order at start	R 93 042 433	R 164 929 591
Total value of package order at finish	R 76 322 391	R 172 235 503
Difference between initial and final costs of completed projects (based on final accounts)	-5.75%	4.43%
Number of projects finished before or on the planned completion date	49%	65%
Fees for professional services	15.6%	8.7%-9.6% (9.2%)

The negative difference between initial and final costs of completed projects for the traditional model indicates the budget that was not spent. This is an indication of poor project management as the funds are budgeted for the purpose and if the funds are not spent it will result in a shortfall of the need not being addressed.

- The model enabled the following:
    - Early contractor involvement.
    - Successful delivery of projects within budget cycle.
    - Cost and time certainty to client.
    - Lower professional fees.

    - Simpler management for client as there are fewer stakeholders (the management contract takes responsibility and engages with professionals).
    - Collaboration between maintenance and upgrading which also leads to higher levels of access and capability to execute works.
- The model enabled progressive procurement options. A framework contract was used with price lists of rates for general activities was utilised instead of a traditional bill of quantities (BOQ). This contracting arrangement builds on relationships which can promote sustainability.

The management contractor (MC) oversees the management of a number of small companies and the case study found that the management contractor itself executed the works. This deviates from traditional MC and is a hybrid developed for the implementation of enterprise development.

The models investigate the inclusion of the services of an additional party: project manager or managing contractor, to promote enterprise development which yielded positive results. These models were implemented as case studies and are applicable in various scenarios across the South African construction industry. The results of the CIDB annual reports presented in Table 2-3 indicate that contractors are not progressing at the rate that will build a positive and transformed construction industry. It is for this reason that all possible interventions need to be investigated to promote the development required.

The research into the impact that Contractor Development Programmes (CDP) have on the improved performance of companies and the promotion of enterprise development is limited. The need for CDPs to be evaluated to understand direct effects of programmes on beneficiaries was identified (Dapaah and Musonda, 2014).

2.5. Lessons learnt from the European assessment

The EU case can now be further scrutinised in order to assess how the construction industry is able to produce such a high percentage of SMEs and the models that have been or are being implemented that promote the development of the companies.

The ECSO Annual report on SME indicates that performance is influenced by a series of economic factors which can be grouped into four main headings:

- General structural factors such as indices reflecting the ease of doing business or overall competitiveness indicators and sub-indicators, education of the labour force, long-term unemployment rate and digitalisation of the economy.
- Cyclical factors such as the countrywide output gap, real long–term interest rate and unemployment rate.
- Macro-economic policy variables such as the real short-term interest rate.
- Factors reflecting the specific challenges faced by SMEs, such as finding customers or accessing finance.

The factors specifically relating to SMEs were investigated by conducting a survey in 2017 to assess the most pressing problems that the SMEs were experiencing. The results of the survey are indicated in Figure 2-3:

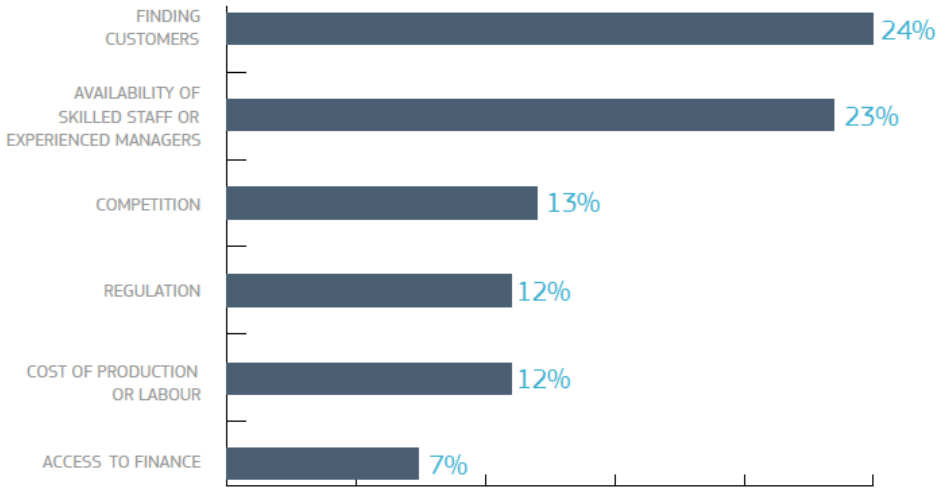

Figure 2-3: EU-28 Countries SMEs most pressing issues (ECSO, Safe Survey, 2017)

The ECSO interventions implemented include:

- Policy provisions through the Small Business Act.
- Promoting Entrepreneurship through an action plan that has three areas of immediate intervention:
    - Entrepreneurial education.
    - Removing existing administrative barriers.
    - Reigniting the culture of entrepreneurship.
- Improving access to markets through the internationalisation of SMEs and standardising technical aspects of the industry to provide all companies with equal opportunity.
- Direct SME support through late payment directives, cross-border claims enforcement, awards and incentives.
- Access to programmes for guided support.

The South African SMME challenges have been investigated which include:

- *Lack of business and financial skills.*
- *Financial constraints and limited access to funding, trade credit and performance bonds.*
- *Late payment by clients which impacts contractors' cash-flows, causing delays in the completion of projects and eroding their profit margins. This also constrains working capital, and encourages corruption.*
- *High turnover amongst skilled workers owing to uncertainties in job opportunities.*
- *Short term nature of the work which makes it difficult to develop and implement long-term strategies and growth plans.*
- *Overly complicated contract award and contract administration procedures.*
- *Intense competition, especially in lower scales of construction enterprise, and difficulty in competing with larger construction firms.*
- *Insufficient resources to provide a safe and decent working environment such as protection, equipment and attire.*

- *Lack of professional advisors and consultants, and where available, the reluctance to use them based on the perception of expensive fees, a lack of finance or awareness.*
- *Lack of capital equipment such as vehicles, heavy machinery or scaffolding.*
- *Uncertainties in supplies and prices of materials, allied with non-existent or poor relationships with suppliers.*

(Dapaah and Musonda, 2014)

The connections that relate to the entrepreneurial aspects of the construction industry prevail as common trends. The EU treats these as first tier problems that need intervention even in a highly developed enterprise development market. The focus on entrepreneurial interventions has not been prevalent in South African studies. Intervention programmes have been the focus of studies. The assessment of entrepreneurial interventions would provide an alternate intervention in the ability to promote improved performance amongst companies engaged in the construction industry. The implication of the entrepreneurial leadership approach was investigated (Bikitshai, et al, 2015) to have a positive effect on the sustainability of the company. This prompts the further review of a business approach and not a structured programme approach as a possible option to promote enterprise development.

2.6.The business approach

2.6.1. Entrepreneurialism

The development of a business requires the concept of entrepreneurialism to be established as an initiating principle. The relevant definition of entrepreneurship is from The Harvard Business School (ILO, 1996) as "the pursuit of opportunity beyond resources one controls". The entrepreneurial factors affecting sustainable growth is investigated through the case study of a South African Construction Company (Windapo, 2018). The internal traits and environmental factors proposed by previous studies (Seelig, 2012) are assessed in relation to a single case study of a successful SMME.

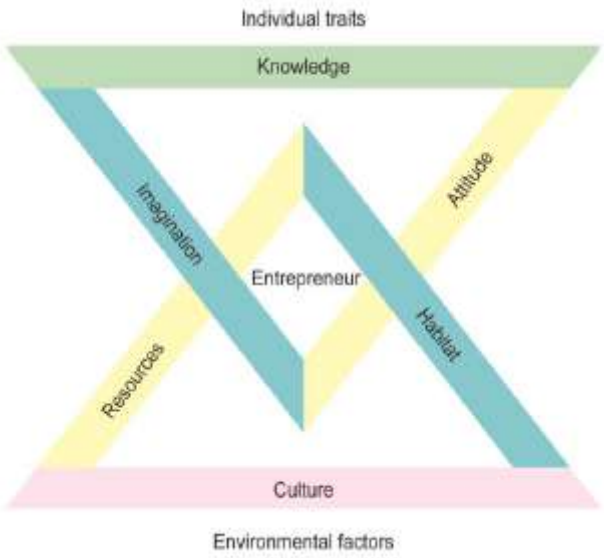

Figure 2-4: The internal traits and environmental factors that shape the entrepreneur (Seelig, 2012)

The investigation conducted by Seelig (2012) assesses an individual's ability to make use of the principles indicated in Figure 2-4 to establish a successful business. Entrepreneurship is assessed as a skill that can be developed through the construction industry to yield positive results. The case study investigated an individual through a qualitative approach that correlated to previous quantitative studies in different environments. This validates the ability of entrepreneurs to harness internal and external aspects, even though the history of the South African construction industry limited entrepreneurs in the past.

There is a positive relationship between entrepreneurial leadership and sustainable growth of small contractors (Bikitsha, et al, 2014). The investigation assesses the factors of entrepreneurship that will enable the development of the company. The key competencies of SMMEs are analysed within a South African construction industry study. These were investigated through self-rating questionnaires sent to 26 contractors within the Gauteng and Limpopo provinces. The competencies from the Seelig (2012) investigation are compared to previous studies to validate their applicability (Makhura, 2011). The outcome is the following set of competency requirements:

- *Initiative.*
- *Sees and acts on opportunities.*
- *Persuasion.*

- *Assertiveness.*
- *Self-confidence.*
- *Systematic planning.*
- *Problem solving.*

The successful implementation of the key competencies will lead to performance of the company.

2.6.2. Business practices to enable performance

The entrepreneur is the initiator of the business, there after the internal organisational and business development practices need to be instated that enable the development of a company. The implementation of positive practices that enable performance which will lead to the development of the enterprise. In a literature and practice review to develop sustainable business model archetypes (Bocken, et al. 2014); the connection between the internal attributes or archetypes of a business are aligned with the business model in order to promote sustainability. The study determined that the archetypes can be broadly categories in to three areas of the business with the relevant attributes as follows:
Technological: Maximise material and energy efficiency, Create value from 'waste', substitute with renewables and natural processes;
Social: Deliver functionality rather than ownership, adopt a stewardship role, encourage sufficiency;
Organisational: Re-purpose the business for society or the environment, and develop scale-up solutions (Bocken, et al. 2014).

The study is important in carving out the practices required within a business that can promote development and performance. The framework is developed from both literature and practice across a range of industries to relate common practices that promote sustainable development. The archetypes set a framework for the key internal attributes that connect a businesses.

2.6.3. Performance of businesses

The research into the improvement of productivity in the business of construction (Snyman and Smallwood, 2016) provides insight to the factors contributing to efficiency of organisations within the target group in the Nelson Mandela Bay metropole. The focus of businesses on either profitability or volume of work, cash flow, and financial status was investigated through questionnaires distributed to companies. The study is a natural

progression from the identified competencies and how these competencies can be successfully implemented in order to improve the performance of the company and thereby promote sustainability. The major finding from the research was the need for construction companies to review how to conduct business. The need for strategic thinking in terms of the efficient management of the operation will lead to the improved productivity of the company. This links to the key competency of systematic planning. The insights gained from this research led to the further investigation into the commercial aspects of enterprise development to provide options of alternate interventions.

The research solidifies that the concept of entrepreneurialism exists in South African construction companies and with improved management techniques it can be harnessed to yield successful results. The management techniques or the key competency of systematic planning is where further intervention should be focused.

2.6.4. Connection to business models

The study on the impact of business diversification on South African Construction Companies (Oyewobi et al, 2013) provides insight into the effect of systematic planning on companies and the influence on performance. The study focuses on companies that are CIDB registered levels 7-9. These are not SMMEs but rather larger established firms. The aim of study is to assess the larger companies to determine validity of implementing business diversification to the emerging contractor market. The research method employed made use of semi-structured interviews and a case study to gain insight on the impact of diversification in relation to geographic operational footprint and offering (service/product). It was noted in the findings that established companies are more likely to diversify than companies that are newly upgraded with the CIDB. Diversification is an approach to the way a company systematically plans to operate. Diversification was found to have a positive impact; however the study did not note significant differences between companies that implemented diversification and those that did not. The finding has a direct link to this investigation. The presence of diversification is an indicator of the presence of a business model. The investigation into business diversification leads to the need to assess all aspects of the operation of a business that constitute a model that directs

the management of the company. The study demonstrates that the impact of the business model can affect the sustainability of the company, which has relevance within the SMME market. This necessitates further research into business models in order to provide a means of promoting enterprise development.

2.7.Business models

2.7.1. Background

The viability of utilising business models as a means to promote improved performance within construction organisations is investigated further. Diversification was investigated in larger construction companies demonstrating a business approach to the effective management of company operations. There is a need to further research business models as a concept and the effect on companies in order to gain insight on the viability to promote enterprise development. The applications to SMMEs is a particular requirement, as the small company market differs from that of the larger firms.

2.7.2. Definition of business model

The need for the development of an enterprise requires the formulation of a strategy in order to achieve successful performance. The strategy must cover current operations and future plans to attain sustainability. The alignment of activities and the orientation in which opportunities within fields (markets, technologies, competencies, etc.) are exploited requires strategic goals (Porter & Esty, 1998). The strategy is formulated to apply to the company's activities or operations in the form of a business model. A business model can be described as the way a company operationalizes its strategy to actual business activities or initiatives (Casadesus-Masanell, 2010). The overall strategy will link the business model to the market and consider competition. The distinction is made between the business model based on internal operations and the strategy incorporating competition to indicate how the business model is utilised (Wikström, 2010). The consideration of all aspects needs to be assessed in the formulation of the

business model. Competition in the business model is assessed internally to determine how the company places itself within industry based on the operation of the company (i.e. service or product offered) in order to create value for customers (Morris, et al, 2005).The approach to the formulation of a business model is narrower than the approach of the strategy. The book: *The entrepreneur's business model: toward a unified perspective* (Morris, et al, 2005) consolidates business model definitions. A six-component framework is proposed for characterizing a business model, regardless of venture type. The six components are:

- Factors related to offering.
- Market factors.
- Internal capability factors.
- Competitive strategy factors.
- Economic factors.
- Growth / Exit factors.

The six components have been critically assessed among a series of papers with particular reference to European case studies. The research into business models and the role and impact of business models has largely been conducted in European literature. The comparison of the South African SMME Market to the European SME equivalent was established at the start of this review. The performance at varying ends of the spectrum are clear. The business model research presented is largely from Europe which the South African construction industry can gain insight from in order to achieve levels of success as observed in the European market.

2.7.3. Role of business models

Business models have a fundamental influence on the success of businesses in all industries, but the effect within the construction industry has not been extensively researched. The business model will give rise to the approach the company has to the selection of work, execution work, and the decision on what work to continue with. The business model and the sustainability of the business is directly linked. The focus on value

creation is the result of the measurement of the success of the business model. There is no finite list of business models that a company can find in a directory, make a selection and comply with. Instead business models draw from a range of influences to create the value that is sought after to attain success. The role of business models has been investigated in Finnish construction companies (Pekuri, et al., 2013). The study indicates the two factors that will affect the selection of a business model can loosely be attributed to either market or resource aspects. These are the internal and external influences on the business. These will influence the positioning and selection of the business in order for the entrepreneur to ensure success.

The internal and external factors give rise to the role that the business models plays in the effective management of each factor and the connection between the two. The business model will detail the internal operations, as well as review the external factors that are affected by the introduction of the business. The way these interact will determine the value that is generated for the customer. The establishment of the business model will ensure this value is created and guide a means to sustainably continue to add value (reference).

2.7.4. Impact of business models

The Finnish Construction Industry (Pekuri et al, 2013) study assesses, through semi-structured interviews with owners of the companies, the ability to align the company with a particular model based on the three factors: business models for single projects, project networks, or business networks, which are described below. The assessment indicated that most companies do not have a model that they adopt, but rather address each project as it is awarded as a means of survival. A further assessment was conducted on the effect of competitive advantage, in which it was noted that no particular effort was put in place to offer a service any different to other competing construction companies.

The construction industry is project-based and the study of business models in project business (Wikström, et al., 2010) is relevant to this research. The study assesses industries

other than construction in order to gain insight on the viability of business models across different organisations, and groups different models that are common to organisations. Organisations included in the study are shipbuilding, telecom and power providers, and services like events management companies that have project-based work that is seasonal and intermittent in nature. The three categories that the study proposes are:

- Business models for single projects: The models are flexible and focus on the efficient delivery with low levels of complexity.
- Business models for project networks: These companies demonstrated interlinking between stakeholders and other organisations activities proposing strategic benefits. Systems integration and engineering competence are core to the success of this model.
- Business models for business networks: This is the most complex model crossing a range of role players. There is significant investment with a longer life cycle that requires continuation of work and larger scope to ensure success.

The study concludes that, although not necessarily prevalent on first assessment, business models are clearly in use and differentiate the levels of companies within the project business.

The varying results from the two studies draw on the parameters that can provide insight on the potential business model of each organisation. These factors may not be explicit but can be deduced in order to attain an understanding on the organisation's operational business plan. The second study indicates the ability to extract this information and categorize the organisations. This assists in aligning a business to a model that is suited to the organization and market. This can lead to options of viability of the business which will lead to improved performance and promote enterprise development.

2.7.5. Elements of business models

Several investigations have been conducted to establish a framework for the business model elements. The elements discussed include; strategic choices, value network, customer value creation, earning logic, and the resources and capabilities of an organisation. Pekuri, et al. (2013) have extracted three elements from a synthesis of

components from Morris et al (2005), Shafer et al (2005), and Nenonen & Storbacka (2010). The study indicates the following components relevant for assessment within the construction industry:

- Value creation system: The aspects of the business that the entrepreneur employs to create value to the customer, i.e. key assets, competencies, suppliers, key partnerships.
- Offering: This is the output of the value creation system.
- Revenue model: This is the insight on how the company generates value to itself whilst providing value to its customer.

The research into the South African construction industry on business models is limited and the SMME market is different from the European environment. The synthesis executed by Pekuri et al (2013) was for an assessment of the role business models play within the Finnish construction industry, which may differ from the South African SMME market. Their synthesis is not applied to this study in order to test a broad selection of business model elements. A synthesis was conducted for this investigation to review key elements discussed in the literature and assess applicability to the South African construction industry context. The outcome of this synthesis is used as a framework for the interviews to cover the various elements of the business model. The synthesis is summarised in Table 2-5.

Table 2-5: Synthesis of elements of business models

Elements of business model		(Morris, et al, 2005)	(Wikström, et al, 2010)	(Pekuri, et al, 2013)
	1	Factors related to offering	Value and flexibility	Customer value creation
	2	Market factors	Organization	Earning logic
	3	Internal capability factors	Innovation and growth	Value network
	4	Competitive strategy factors	Competence and assets	Resources and capabilities
	5	Economic factors	Relationships and collaboration	
	6	Growth / exit factors		

The various elements have been assessed from previous studies relevant to this investigation. The necessity of assessing the various elements is create a 'common language' in the assessment and discussion of business models (Pekuri, et al, 2013). This enables the comparison of various aspects or operational factors of a business in relation to these elements. The intention is to generate a framework in order to test the presence of a business model and in this case, the viability to promote enterprise development. Morris et al (2005) conducted an extensive assessment of elements of business models with the intention of drawing similarities and consolidate the various definitions of business models within the literature over time. Nineteen sources were investigated with twenty four different elements assessed. This was synthesized into six elements. This has been used in this investigation as a baseline for assessment to be further examined in relation to other investigations that are construction specific. Wikström, et al, (2010) assessed elements in relation to companies in the project business, and Pekuri, et al (2013) determined based on construction companies in Finland. These three investigations were selected as key determinants of elements of business models that are related to this investigation. The elements were analysed in relation to the South African construction industry and the factors selected to be used as the 'common language' for this assessment are as follows:

- Value creation:

  The product or service that the companies offers to its clients in order to generate revenue.
- Economic factors:

  The means in which the product or service offered is translated into revenue generation.
- Market influence and organisation:

  A key aspect of SMMEs is the locality of the business, this is assessed in the influence and impact of the local market, and how this affects the organisation of the business.
- Internal capacity, competence and assets:

  The entrepreneur is a key factor of the business, this is expanded in this element. The resources that the business has is also assessed.

- Personal, relationships, investors, collaborators:
  The connections that the company has that affects the business.
- Competitive strategy and innovation:
  The aspects that determine the direction of the business and affect operational decisions.

It is important to note that the synthesis of the elements is a study in its own accord. This synthesis was necessary to develop a framework for this investigation in order to have a 'common language' and framework when gathering data.

2.8. Business models investigated

An investigation was conducted into South African literature specifically to identify and assess business models that have been studied. The review initiated further research into each model in order to determine a trend in the literature of the aspects of the business that determined the selection of the specific business model. These aspects are expanded and termed operational factors in this investigation. The purpose of this aspect of the literature review is to identify the operational factors that have been assessed as a part of previous studies that were prevalent in the specific business model. The intention is to generate a set of operational factors that can be investigated as part of the collection of data in order to a have framework that is consistent.

2.8.1. Franchising

Parker and Illetschko (2007:15) define franchising as:

> *A grant by the franchisor to the franchisee, entitling the latter to the use of a complete business package containing all the elements necessary to establish a previously untrained person in the franchised business and enable them to operate it on an on-going basis, according to guidelines supplied, efficiently and profitably.*

The model has been used successfully in South Africa, particularly in the retail and services industries. The applications in the construction industry have been limited. A case study on the benefits to the operations and maintenance of water services in the Eastern Cape has been investigated (Wall, 2006) which extended into a pilot study and assessment of experiences from the application of social franchising (Wall et al., 2010). The initial assessment identified a need for alternative water services provider systems, and that local economic development was crucial. Franchising provided a means to achieve both objectives.

The following findings were derived from the investigation:

- Service provided from the franchisees must achieve the specification of the water services authority.
- Suitable franchisors are willing and able.
- Local entrepreneurs are willing to take up water services franchisee opportunities.
- Franchising proves to be viable for both franchisor and franchisee.
- Funding partners support water services franchising to the same extent that they support other institutional means.

The pilot study was applied to the water services of 400 schools in the Butterworth district in the Eastern Cape to assess suitability. The start-up of the pilot did encounter administrative and political hurdles, but ultimately the pilot study was a success (Wall et al., 2010).

The benefits experienced include the introduction of a more professional approach to water services provision. Previous studies display limited success that does not extend beyond the period of financial support. The franchising model did however exhibit the potential to have a sustained effect with a more professional approach. The renewed approach also had benefits in removing the stigma around water services, particularly sewerage, as a lower level business that the entrepreneurs did not want to get involved in. The engagement between all stakeholders was more active and this elevated social services to a business platform that individuals could see the benefits of making a business out of. This potential to run a sustainable business was introduced and this also benefited the Department of Water that requires the long term upkeep of water facilities. The

findings from implementing a franchising model indicate that business concepts can be transferred to the construction industry towards the improved management of SMMEs in order to achieve development (Wall et al., 2010).

The findings of the case study are assessed in relation to research of the application of a franchising model in different scenarios. The aim is to assess the parameters that affect the choice of the business model. The factors affecting the selection of the franchising model can give rise to the rationalising of business model suitability. The factors can be used to assess parameters of the operation when determining the business model. In the case study of the United Kingdom (UK) construction industry looking into the viability of franchising (Watson & Kirby, 2018) there are outcomes that can be synthesised into the investigation of the factors that need to be considered when selecting a business model. The investigation is structured in two tiers, the first tier investigates small business franchising in a qualitative assessment based on the failure of the businesses due to bankruptcy. The second tier then assesses the failed construction businesses and the reasons for the failure. The analysis is limited by the data selection which covers all industries which is then further extracted to assess the failed businesses in the construction sector. There are not many construction companies that have a franchise model. The study indicates that most failed franchises were a result of poor franchisee selection. The exposure to franchising is low and hence the intake of potential competent franchisees is low. The study did find that a few operational issues were experienced when the correct franchisee was engaged, but not as significant as the effect on the upfront human capital requirements. The key factor of assessment is the relationships and collaboration within the business model; the correct selection of collaborators resulted in a successful business. Franchising has the potential to be a viable model to promote development of companies if all stakeholders are aligned. The outcome of the study concludes that franchising is not suitable for the UK construction industry based on the human capital requirement. This is a key finding for the assessment of factors that need to be investigated when selecting the appropriate model. The human capital referenced is the extent of the work force and the support required to manage the large workforce. This includes the supervision, additional human resource management and active engagement required to handle the extent of employee's requirements.

The South African investigation into the franchising model had a contrasting outcome (Wall, 2010). Franchising was determined to be viable option based on the pilot study conducted. The pilot study was executed as social franchising with a structured approach, which carries similarities to the implementation of a program. The UK model (Watson & Kirby, 2018) applies a business franchising model and conducts the analysis on business failure. The two approaches do vary within the franchising spectrum and lead to the topic of this investigation. The South African model has service delivery as a key indicator to the success of the implementation of the model. Service delivery, in particular of municipal infrastructure projects and maintenance, is a large area of concern due to the general poor perception of performance. Service delivery is an important deliverable to be considered within the South African construction industry.

The study into the franchising of health services in low income countries (Montagu, 2002) adds further insight to the parameters that affect the selection of a business model. The study investigates the franchising of family planning services offered to the community. This is an example of social franchising, which is mandated to achieve social rather than financial goals. The activities associated with social franchising that were assessed are:

- Assuring availability of services:
    - Providing services to the franchise as a whole.
- Quality of services:
    - Determining if the services provided are up to standard.
- Awareness and use of services:
    - Assuring the use of the services provided.

The model developed in the study is based on an existing conceptual framework encompassing legislation and standards related to the medical services industry. The analysis indicates the potential that a franchising model has to promote rapid expansion and local ownership. It is indicated that the initial business infrastructure required is onerous, and in this case, an existing private medical franchise network would enable a public franchise network to develop. The key components assessed that contribute to the selection of the franchising model is the quality control of the service provided, the access to the service, and the use of the service. Access to service is the ability of a company to

connect what it is selling to the market it is intending to sell to. The use is the next step, once the market has access to the service, that it is actually used. These components can be applicable to construction and can be included in parameters for assessment.

The franchising model has a range of parameters that have contributed to the selection of the model. These are summarised as follows:

Table 2-6: Synthesis of parameters from the research into the franchising model

Parameters	Investigation	Scope
Service delivery	(Wall, 2010)	SA water infrastructure
Human capital requirements	(Watson & Kirby, 2018)	UK construction
Quality, access, use	(Montagu, 2002)	Low-income countries health services

These factors can be taken further into the study to determine key parameters to the selection of a business model.

2.8.2. Supply chain

In assessment of literature pertaining to a business approach to promote enterprise development there is a "move from the project and its management, as the main focus for the management of the construction process, towards the supply chain and its management as the main focus," (Pryke, 2008). The focus on supply chain management within the construction industry is an approach to create value for the client by establishing links within the provision of the construction services. The harnessing of profitability at each level of a construction project has led to a movement in management towards the supply chain. There is limited research into the applications of supply chain management within the South African construction industry and the ability to promote enterprise development. The ability of supply chain management to proliferate in the South African construction industry (Emuze & Smallwood, 2013) was assessed in a conference paper. The proactive management of the supply chain was assessed to improve

project performance through a case study conducted on a general contracting form. The interconnected activities and resources between supply chains and construction sites was highlighted as a key factor to the application of supply chain management. The investigation assesses the benefit of a network of firms working together to achieve objectives for construction projects and offer value to the client. The benefit of quality control and improved management of deliveries of material to site was a key finding. The sharing of resources, namely the same quality and stock control resulted in a positive stock inventory which is critical for cash flow in construction projects and reduced the return of material sent to site that did not comply to specification. This was classified as the horizontal supply chain which is an effective model enabling flexibility through sharing resources and capabilities among collaborating firms. Resources, in particular construction material, was a key component assessed in this report.

In the review of an industrial organisation economic supply chain approach to the construction industry (London & Kenly, 2001) the supply chain concept is merged with the economic industrial organisation model in order to assess the viability of supply chain in construction. Industrial organization methodology assesses the performance of a business, its position within the market, and how it is organised. This is done by assessing market related pricing in relation to the ownership structure of the company, i.e. owner managed. The competitive relationship between firms inform the organisation methodology as a useful tool to the review of the supply chain viability. The investigation broadly groups the supply chain concept into four themes based on a literature review conducted over time through an analysis of thirty four sources. The themes are:

- Distribution:

  The assessment compares the traditional logistics definition of distribution in supply chain to material movement in the construction context. This draws links to the research conducted into a general contractor in South Africa (Emuze & Smallwood, 2013). Similarly the concept of “agile construction” is introduced which aligns to the finding of increased flexibility in applying the supply chain.
- Production:

  The concept of lean production in construction deals with the effective management of the production process in order to deliver optimum performance.

The connection to construction can be made through direct indicators, such as the reduction of waste and the efficient management use of resources is a key indicators to the applicability of the supply chain concept.

- Strategic procurement management:
  The establishment of relationships to harness the buying power of a service provider is the key factor in the field of investigation.
- Industrial organisational economics:
  The ownership structure and transactions executed resulting in economic impacts initiate the supply chain option. The business model has to be economically viable in order to be assessed as an option (Emuze & Smallwood, 2013).

The factors are key determinants in the selection of applying a supply chain model and can be used in the investigation in the assessment of business models within the South African construction industry.

The case study of the UK construction industry (Morledge et al., 2009) highlights the key aspects of the industry:

- Fragmentation (in relation to the cyclical nature of expenditure on infrastructure affecting the market performance).
- Adversarial relationships (citing: client, consultants, and contractors).
- Project uniqueness.
- Separation of design and production.
- Competitive tendering.

The investigation concludes that the construction industry does not have the culture of a single industry, and contains aspects of a series of different industries in one: manufacturing, and client focused services. The construction case can be described as a 'supply network' as opposed to a supply chain. The case of additional businesses in a single model can be further investigated and a consideration in this research. The possibility of a company to incorporate aspects of the business that are not exclusively within the construction industry to expand its network is a potential attribute of the business model. The assessment of possible primary and secondary services offered by a single business in this investigation must be assessed as an operational factor affecting the selection of business model.

The assessment of the supply chain business model literature provides insight to the viability of this particular model to be implemented in the South African construction industry. The takings from this aspect of the literature review were conducted to extract key factors that affected the decision to implement this specific model. These can be extracted as factors to be tested in this investigation to determine the research objective. The key findings are the operational factors that affected the use of the business model. These can be listed as follows:

- Resources within the company.
- Management of construction materials.
- Ownership structure of the company.
- Production efficiency (especially in relation to resources and wastage).
- Primary and secondary services offered by the company.

2.9. Ring-fence of academic study

The literature review progresses from overall business approaches that have been instated with the assistance of external intervention (through case studies) to the implicit information gained from research conducted of operational companies (through semi-structured interviews). The research will be to test viability of business models as an alternative to the interventions that already exist in the South African construction industry. The divergence from testing the ability of SMMEs to be successful within the framework of a program; to a focus on the internal operations of SMMEs is investigated. The internal operations are assessed in relation to a business model that traits can be determined and a particular approach observed. The first tier of the intervention is to assess the viability of business models as a concept, and their ability to promote enterprise development. The aim is not to implement any findings or determine the preference to any particular business model. This academic study employs a research methodology that looks into existing companies in order to gain insight on business model fundamentals.

3. RESEARCH METHODOLOGY

3.1. Research design

The design of the research has been structured by considering two factors: the need to achieve an outcome in terms of the research objective and taking into consideration previous studies done in both South African and international research. The research method into the viability of different business models has been structured in a manner to extract as much insight from the sample in order to test applicability to the research objective. The research methodology is not aimed at testing a hypothesis, but rather to assess the data from a range of sources in order to gain insight on viability to the South African construction industry. The intent of verifying viability is to determine if the concept of business models can be applied successfully. In order to determine this, the market needs to be sampled and questioned in terms of actual parameters to draw out a response to the research question.

The previous studies have had varied response in gaining insight from the research process on the ability of companies to determine if business models are conceptually present in their operation. The framework of semi-structured interviews were used in two similar studies in Finland:

- Finnish construction companies: Interviews with managers (Pekuri, 2013).
- Business models in project business: Interviews with senior executives (Wikström, 2010).

The research in the construction companies (Pekuri, 2013) indicated that the interviewees had significant problems describing their company's business models. The questions used in the study were aligned to the three areas and sample questions are as follows:

- Value creation system:
    - Customer relationship and experience.
    - Production and operating systems.
    - Selling and marketing.
    - Technology used (i.e. labour based), innovative capability.

- Offering:
    - Products, services, or a mix of both.
    - Broad services with shallow depth or the opposite.
    - Internal manufacturing ability or outsourcing.
- Revenue model:
    - Pricing and revenue sources: fixed or mixed (i.e. construction and catering).
    - Operating leverage.
    - Volumes and margins.

This was extracted from previous business model studies, and an extract into the applicable parameters of business models to the Finnish construction industry.
The second study started with the understanding that business models will not be explicit but rather will be hidden or embedded in the companies' operations, whether formal or informal. The semi-structured interviews were used to gain primary data, but the companies used in the study were then treated as individual case studies and the research was extended further to gain insight from each case study. Websites, documents, and corporate presentations were used to provide further information. Workshops were held with the companies to stimulate focused discussion to ensure that the business model was understood. This approach provided the insight necessary to determine the type of business model used.

This study does not seek to determine which specific business model is used, but rather that they are present and that they are a viable option to promote sustainable development. The case study methodology will not be required in this case. It is understood that the determining of the business model is not going to be explicit and hence further means of extracting information from the sample group will be necessary.

The benefit of both quantitative and qualitative research in the built environment as a mix of input data has been investigated as a desirable research design (Amaratunga, et al. 2002). The business approach, and specifically the investigation into business models has not been done in the South African construction industry before. The use of a singular research method may limit the investigation and lead to a shortcoming in the achievement

of the research objective. The built environment has a broad influence of factors contributing to the success of a business, cognitive and affective, as well as behavioural (Amaratunga, et al. 2002). The business model in particular needs to be assessed in relation to all factors if viability to promote enterprise development is to be determined.

This research report has been conducted in two approaches in order to gain insight:

- Quantitative: Assessment data that has been gathered by a company through its enterprise development portal.
- Qualitative: Semi-structured interviews with contractors.

3.1.1. Quantitative methodology

The intent of the quantitative assessment is to determine patterns from a data set if it is possible to extract a business model. The data is assessed in terms of factors influencing a company and the elements of a business model. The first tier of assessment makes use of an existing data set that has been gathered by a company within the target area. The company plays the role of a client within the construction market and appoints contractors to execute a range of projects associated with the execution of the operation. The company will be referred to as "Company X" in the report. Company X has established an online portal where SMMEs register in order to be eligible to submit proposals for the available projects. The company has established a database of contractors within the targeted area that have registered and have been interviewed by a third party in order to gain insight to the company and extracted information that has been consolidated in the data set. This data is assessed in this investigation to gain insight to the research objective.

3.1.2. Qualitative methodology

The Finnish research models are insightful. Finland has a well-established emerging contractor market and the research is well established through interviews. The same approach is employed in the present study in order to assess viability within a South African context. The informal interviews have a set of questions that have been pre-determined based on the factors of the company and the elements of a business model.

These are used as a framework for the interview, however do not serve as a questionnaire. The aim is to employ a semi-formal, flexible approach that enables the extraction of information that is not explicit from calculated approach.

3.2.Research parameters to be investigated

The literature review gave rise to a range of elements that comprise the characteristics of the business model. The selection of elements to be tested is based on parameters relevant to the specific study that are able to be tested in both the quantitative and qualitative assessments in order to assess the viability of the business model to promote enterprise development. The elements to be assessed are as follows:

- Value Creation.
- Market influence, and organisation.
- Internal capability, competence, and assets.
- Competitive strategy and innovation.
- Economic.
- Personal, relationships, investors, collaborators.

The factors that give rise to the concept of the business model within each element are also extracted from the literature review. The research into specific business models, namely franchising and supply chain was conducted to determine specific factors of a business that can be questioned in order to determine elements of the business model. The factors are as follows:

- Service delivery.
- Human capital requirements.
- Quality, access, and use.
- Equipment.
- Construction material handling.
- Ownership structure.
- Production (efficient use of resources, wastage).
- Primary and secondary services offered.

The process of the research assessment will be conducted as follows:

- Investigate extent of specific factors.
- Align the response to a conceptual business model.
- Categorise business model.
- Analyse business model categories in an ability to determine potential to promote enterprise development.

3.3. Boundary of study and selection of research target group

The previous studies in South Africa have predominance in the Public Works projects within Gauteng, Eastern and Western Cape. There would be benefit to obtain data from another source in order to gain further insight into viability of models. The Nkangala region within the Mpumalanga province is indicated in Figure 3-1 below.

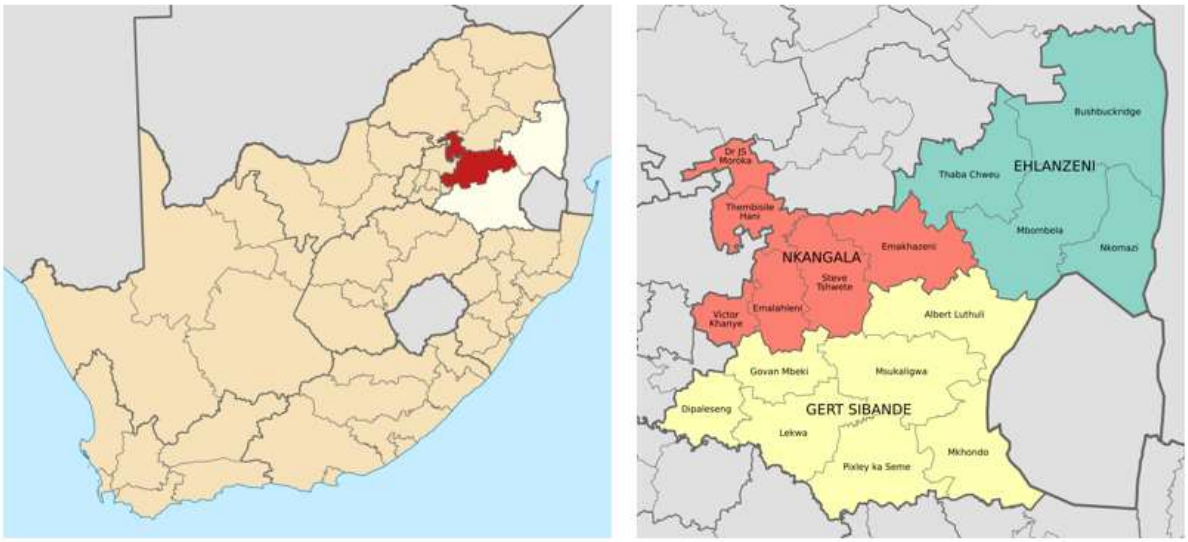

Figure 3-1: Locality of Nkangala Region (Nkangala Council, 2019)

The region is characterised by a high concentration of mining activity due to the rich deposits of coal in the geology of the area. The rich coal deposits enables the fruition of two industries: mining and power generation.

Figure 3-2 indicates the distribution coal mines and the respective private enterprises that own the mining right to extract the resource. There are twenty six active mines within the Nkangala region. The concentration of coal mines leads to the close connection to

coal-fired power stations. The reduced transport requirement gives rise to the power stations established in close proximity to the coal source. This is displayed in Figure 3-3 illustrating the locality of the South African power generating State Owned Entity (SOE): Eskom coal-fired power stations. There are seven active coal-fired plants and one that is in the process of being re-commissioned with the intent of returning the power station back to service due to the increased demand for electricity.

The region is a hub of economic activity associated with the two industries that presents opportunity for construction of new or additional facilities associated with the industry, as well as maintenance of the facilities and support infrastructure to the meet the demands of the two industries. The active private and parastatal sectors also increase opportunity in the public sector. The region was selected as it presents great insight into enterprise development due to the great opportunity that is inherent to the area.

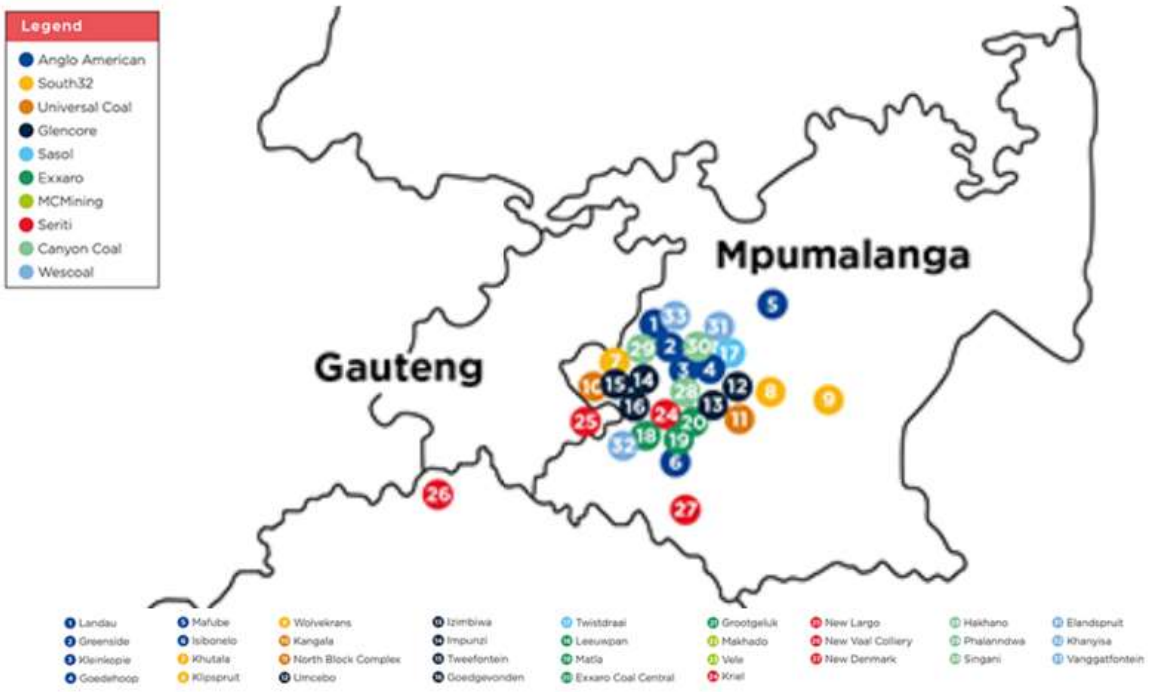

Figure 3-2: Coal Mines and respective private enterprise owners within Mpumalanga Region (Minerals Council South Africa: 2018)

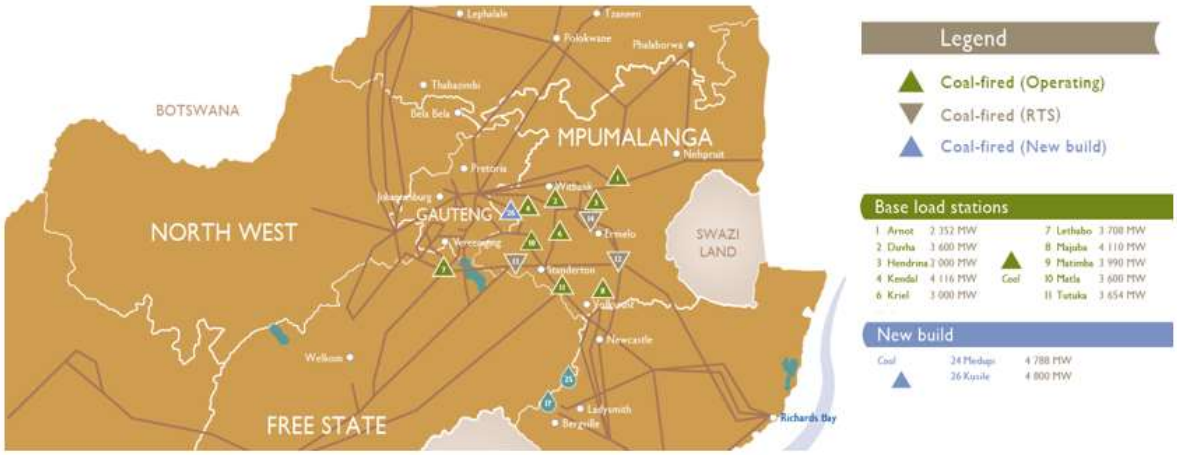

Figure 3-3: Eskom coal-fired plants within Mpumalanga region (Eskom, 2018)

The mining industry has a large range of infrastructure development projects that require the speciality of the construction industry in order to be successfully executed. The projects have a broad range from the establishment of new mines in the form of large scale projects to smaller maintenance works that are applicable to SMMEs.

The Department of Mineral Affairs (DMR) promulgated the new Mining Charter that will be in effect from January 2020. The Mining Charter has new sections that establish the requirement to target SMMEs in order to promote enterprise development. The large private enterprises have placed focus on SMME market in order to comply with these requirements. It must be noted that at the time of investigation the construction industry within South Africa is not in a favourable state due to economic instability. The assessment based on the influence and opportunity that mining presents is not a representation of the entire industry, but a fair assessment aligned with the research objective to understand viability.

The companies that are engaged in the assessment are registered on a data base from one particular mining company with a range of mining complexes in the region that form part of the target group in order to collect data. The companies are representative of all the companies within the region. Most of the private enterprises have the same system of collecting information and establishing a data base of companies. The assessment of more than one database may lead to the overlapping and duplication of information, as one company may be registered with more than one company.

The companies on the data base must comply with requirements of the client in order to be deemed as SMMEs and eligible for preferential procurement. The companies must be based a maximum of 30km from the mining operation. These companies do not need to be registered with the CIDB, which does inhibit the alignment between the two classification systems. The qualitative assessment extracts information from the current set of data that can provide insight to the research objectives. The quantitative assessment selects companies from the data base to be engaged directly as research participants in the semi-structured interviews. The research participants are aligned with previous studies to be the company owners in order to be able to extract high level information on the business model. It is expected that the research participants with have the following characteristics:

- Age range: 20 to 50 years old.
- Companies can be male or female owned.
- Sample size: 10 company representatives to be interviewed.

3.4.Ethical considerations

The research required the involvement of human participants to gain insight to the research objective. The University of the Witwatersrand (Wits) requires ethics clearance from the Human Research Ethics Committee (HREC) (non-medical) for this research scope. The guidelines from the HREC code of conduct informed the procedure of the research methodology. The ethics clearance approval has been issued on 09 December 2019 (Protocol Number CEECC-0707520Y-2019) and as such the following conditions need to be adhered to:

- Ethical data collection.
- Informed consent from research participants.
- Participant identity protection.
- Acceptable handling and data storage during and after the research investigation.

The details of the ethics clearance are indicated in Appendix A: Ethical Considerations. The protocol is provided and key requirements of the approval:

- Participant information sheet.
- Sample questions for interview.

The ethics clearance is valid for both the quantitative and qualitative components of the research.

Quantitative:

The data set that was analysed is based on a questionnaire that was originally sent out prior to this research investigation. Permission from the company that commissioned the generation of the data base for the internal use for project procurement required permission. The company required the signing of a non-disclosure agreement and the formal acknowledgement that the information is intended for academic purposes and that the research report would not be published beyond the internal Wits framework.

Qualitative:

The interviewing of participants was guided by the HREC process and key requirements such as anonymity of participants, the acknowledgement of participation, and understanding of the level of involvement was clearly stipulated before engaging with the representatives of each company.

The HREC has generated a risk matrix to determine the risk level associated with the research to be conducted in relation to the involvement of humans informing the level of ethics clearance required. The risk associated with this investigation is deemed as minimal and hence the ethics clearance application was handled within the School of Civil and Environmental Engineering's ethics committee.

The questionnaire that formed part of the existing data that was analysed as part of this investigation and interviews is bound to the Promotion of Access Information Act (PAIA) (2000) ensuring confidentiality and anonymity where requested. There was no use or assessment of personal information only the information on the business used to gain insight on the business model.

3.5. Set-up of the investigation

The two phased approach was conducted to maximise data analysis to achieve the research objective. The quantitative data collection and analysis was conducted before the qualitative interview phase in order to pick up trends in the data and apply that insight to the semi-structured interviews. A correlation between the two components of the study was then conducted in order to validate the research data. The set-up of the research for each component is a factor to be stipulated as it may have effect on the analysis and hence the outcome of the research objective.

The research was set up as follows:

- Quantitative:

The data is based on existing information. The information was obtained through a questionnaire that was circulated that companies that intended to submit proposals or tenders for projects within mining infrastructure development. The questionnaire requested information in order to gain insight in to the company's ability to engage in the procurement process and indicate a level of ability to conduct commercial activities within the construction market specifically related to the coal mining industry. The data was selected for this research investigation for the applicability to provide insight to the research objective. The insight into the business model is valid in the database through information on the business operations that can lead to the presence, impact, and possibly even the type of business model implemented within the companies listed. The intent of the analysis of the database is to pick up trends that may provide a baseline assessment of the impact of business models in SMMEs.

In order to not limit the baseline assessment, the database analysis has no elimination of information. The assessment of the full data base of contractors to form the data set for this investigation leads to a higher level of insight towards the research objective. The qualitative assessment implements delimitations to refine the investigation and converge towards the impact of business models and align with the research objective. The correlation thereafter with the two components serves to verify the total fulfilment of the investigation.

- Qualitative:

The literature review was conducted and insight was gained on key parameters to be tested in relation to two aspects of the investigation:

- Company factors that are key indicators to the operation.
- Business model elements.

The operational factors determined from the literature review of business models implemented in construction related industries are as follows:

- Procurement.
- Service delivery.
- Quality, access, and use.
- Human capital requirement.
- Equipment.
- Construction materials.
- Ownership.
- Production.
- Primary and secondary services.

The business model elements implemented in this investigation were derived from a synthesis of elements investigated in previous studies, detailed in the literature review. The compilation of elements is summarized as follows:

Table 3-1: Synthesis of business model elements with the elements assessed in this investigation

		(Morris, et al, 2005)	(Wikström, et al, 2010)	(Pekuri, et al, 2013)	This investigation
Elements of business model	1	Factors related to offering	Value and flexibility	Customer value creation	Value creation
	2	Market factors	Organization	Earning logic	Economic
	3	Internal capability factors	Innovation and growth	Value network	Market influence, and organisation
	4	Competitive strategy factors	Competence and assets	Resources and capabilities	Internal capability, competence, and assets
	5	Economic factors	Relationships and collaboration		Personal, relationships, investors, collaborators
	6	Growth / exit factors			Competitive strategy and innovation

The two aspects are used in order to determine the presence of a business model. The company factors serve as indicators to the aspects of a business that provide the insight into a business model. The interviews were set up to go through questions systematically that align to the different elements that underlie a business model. When going through the questions aligned with each element, the aspects used to determine business model understanding are aligned to actual operational factors.

The companies selected for the interview process are registered on the database used in the quantitative assessment. The selection of companies from the large database is directed by the engagement with the company in active projects with the company that

commissioned the generation of the database. This ensures the operational activity of the company in order to gain insight to the business model. The companies are selected across a range of project values in order to gain a perspective of the business model from varying economical active engagement.

The participants have engaged in the research process in alignment with the HREC requirements: the relevant permissions and participant acknowledgement were formally agreed before engaging in the interview process.

3.6.Data collection and analysis

The data for the research project was collected by two means:

Quantitative: Analysis of existing data:

The quantitative assessment was through a database that a single larger company has generated regarding a range of contractors that execute work for the company on a project basis. The company has permitted the use of the information for the purpose of the research under a non-disclosure agreement. The company and the data (i.e. contractors' information) will have their identities protected. The outputs from the data will be incorporated into the same analysis and discussion with the outputs from the qualitative analysis to enable convergence towards a conceptual business model that can be generalised to be applicable to all enterprises.

Qualitative: Interviews

The target area of the study is Emalahleni (former Witbank) in Mpumalanga. The companies engaged in the construction industry were interviewed in order to obtain insight towards the research objective.

The interviews were conducted in a manner that the information collected to form the data of this investigation enabled an assessment into the viability of the business model to promote enterprise development. It was necessary to select a tool to frame the

investigation to ensure alignment to the research objective. This tool was related to the nature of the study and the engagement through the semi-structured interview and analysed via a matrix. The matrix was selected as the most applicable tool to organise the data as the research has a broad range with various contributing factors that are complex and inter-related. The interviews investigated the operation of the current businesses that are active, and as such the investigation into the business model is a form of applied research in order to gain insight to the influence the business model and its ability to promote enterprise development. The interviews are closely related to the entrepreneur that the business is based, and hence the engagements take a social approach, and the applicability of social sciences is valid in the selection of the research method selected to frame the investigation. The use of a matrix is a tool of the Framework Method for the management and analysis of qualitative data (Richie, J & Lewis, J, 2003). The framework method is useful to provide highly structured outputs of summarised data from multi-disciplinary research (Gale, et al., 2013) was noted in the application to multi-disciplinary heath research. The literature review of franchising models in the health sector gave rise to operational factors that formed the indices of the matrix in the framework method, which validates the correlation between the different fields and common research method applicability.

The investigation into the selection of the research methodology in construction production studies was conducted (Panas & Pantouvakis, 2010) to determine the appropriate methodology for the research aims and objectives. A three level hierarchical classification system was developed, as indicated in Figure 3-4.

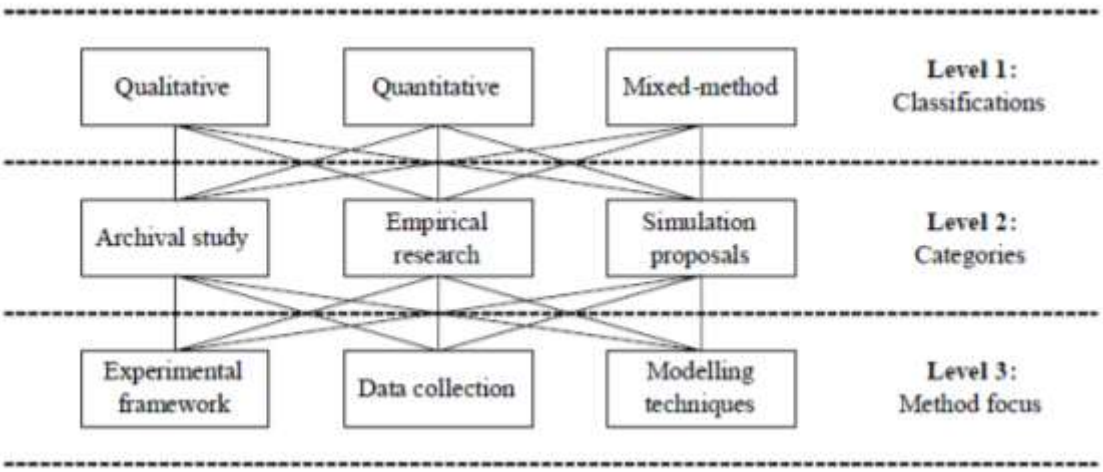

Figure 3-4: Construction productivity research taxonomy (Panas & Pantouvakis, 2010)

The selection of experimental framework for the method in the qualitative assessment of construction productivity enabled the methodical determination of the contributing factors. This is a further motivation for the use of the framework methodology and the use of the matrix to structure the analysis of the data from the interview process. The matrix enabled the data to be collected in an organised manner and the connections to be made to facilitate the analysis.

In order to facilitate the data analysis the Framework Model was implemented to enable a structured approach to the qualitative method executed in the interview process the matrix in Table 3-1 is indicated below.

Table 3-2: Business model determination matrix

Business model determination matrix		Operational factor								
		Procurement	Service delivery	Human capital requirement	Quality, access, use	Equipment	Construction materials	Ownership	Production (efficient use of resources, wastage)	Primary secondary services
Business model elements	Value creation									
	Market influence, and organisation									
	Internal capability, competence, and assets									
	Competitive strategy and innovation									
	Economic									
	Personal, relationships, investors, collaborators									

3.7.Investigation controls

The research data was collected in a controlled manner to align with the matrix that was deduced from the literature review. The matrix is indicated in Table 3-2. This was used to control the direction of the qualitative (interviews) and quantitative data collection.

3.8.Delimitations and limitations

The investigation is conducted in a period where the construction industry has an overall poor performance largely related to macroeconomic factors within South Africa. This affects the development of all aspects of the industry, including the SMME market. The study looks at SMMEs within a mining and power generation market that displays improved performance in comparison to broader infrastructure development markets. This limits the applicability of the results across the entire country at the time of the assessment.

4. DATA PRESENTATION AND ANALYSIS

4.1. **Approach to analysis of data**

The results are presented for the two research methods that have been used in order to investigate the viability of business models to promote enterprise development. Through both quantitative and qualitative approaches to obtaining data, the research methodology is defined by four steps:

Step 1: Identify the presence of business model through the assessment of quantitative and qualitative data.

Quantitative: Analysis of data set (explain briefly what this comprises) to determine trends that provide insight to the business model of the enterprises.

Qualitative: Conducting of semi-structured interviews in order to gather data for analysis in a structured approach to gain insight towards the research objective. The Framework Analysis approach, using a matrix structure was applied to assess the indices that were identified from the literature review:

- Operational factors.
- Business model elements.

Step 2: Assess the operational factors in order to assess if results from the semi-structured interviews can lead to insight on the business model implemented by each company.

Step 3: Assess similarities in the results of the various companies interviewed in relation to business model elements that have been formulated based on previous investigations in order to assess the viability of the conceptual business models. Compare and contrast the different respondent inputs in relation to the literature.

Step 4: Assess conceptual business models suited to the SMME market. Determine the ability of conceptual business models to enable development.

Step 1 and 2 are presented in Chapter 4, the analysis of the data. Step 3 and 4 are discussed further in Chapter 5: Discussion.

The quantitative assessment was executed before the qualitative data gathering using semi-structured interviews. This was beneficial in establishing the knowledge base for the investigation, which could be expanded in the qualitative aspect of the research.

4.2. Quantitative analysis

4.2.1. Data characteristics

The data set is based on the information from Company X. The company has an online portal targeted at SMMEs for the implementation of preferential procurement. The SMME companies register on the portal in order to engage in the procurement process. Company X has appointed a third party to assess the registered contractors to aid the procurement process. The information obtained is used in this investigation as data to gain insight towards the research objective. The information was gathered through interviews with the registered SMMEs. The information is then consolidated in a database. This database is used as the data set in order to execute a quantitative analysis on the information for this investigation.

The interviews conducted by the third party commissioned by Company X with the SMME have four sections of assessment:

- Basic details:

  The information requested includes, SMME name, registration date, B-BBEE recognition, annual turn-over, and number of employees.
- Client portfolio:

  The speciality of the SMME and the industry in which the enterprise operates; the work experience based on previous and current projects is requested.
- Operational capacity:

  The questions are directed at the following factors: size of operations, employees, machinery, and level of skills of employees. The future plans and locality of operations is also requested. There is a question relating to the level of support that the SMME anticipates in order to achieve its goal.

- Other details:

  The other details requested are targeted at gaining insight to the SMMEs' operational and financial controls. Problem resolution, budgeting, and cash flow management are key areas that the interview questions cover to gain insight on these factors.

The outcome from the interview is then assessed by the third party and the SMMEs are categorised to enable targeted preferential procurement. This is to ensure the projects released for procurement are aligned to the target market and capacity of the SMMEs that will submit proposals. The outcome is summarised in four categories of SMMEs as follows:

- Category A:

  The SMMEs that have been designated in this category are deemed to be "business ready". The responses to the interview questions will have indicated an active turnover. The SMME has completed previous projects, and has displayed capacity in the questions directed at people and equipment. The company can execute works through positive financial controls and cash flow management.

- Category B:

  The enterprises that are in this category have been assessed as "not business ready" from the interview screening process. The SMMEs in most cases do not have active turn-over and hence have no history of previous projects. These are mostly start-up enterprises. The level of support to ensure the successful achievement of a project executed by an enterprise in this category will be extensive.

- Category C:

  The SMMEs that have been graded as category C are not recommended for inclusion in further procurement processes. The enterprise either had poor presentation at the interview, or has previously engaged in projects with the same company or any other company and has been flagged as high risk. This high risk can be related to non-performance on previous projects or a negative financial position.

- Category D:

  The SMMEs in this category had interviews scheduled, but did not attend the session nor re-schedule another time.

There are SMMEs within the data set that have not been categorised and have no description. These companies have been sent notice to attend an interview, but did not respond. There are many possible reasons for this outcome: the company may be shelved, or the enterprise may have directed focus away from the procurement avenue facilitated by the online portal. The information on these companies is limited as no interview took place. The summary of data set is indicated in Table 4-1.

Table 4-1: Summary of data set

Description	No. of enterprises	Average profile completeness
Total registered on portal	3148	76.51%
No interview contact made	2095	70.34%
Interview contact made, and further categorisation	1053	83.10%
Category A: Business ready	196	92.59%
Category B: Not business ready	649	91.13%
Category C: Not recommended	75	83.41%
Category D: Interview scheduled, but no attendance	133	75.38%

There are two key measurable indices that are used in the analysis of the information from the data set. The two indices, are presented in Table 4-1 above, namely:

- Number of companies:

  This denotes the number of companies that fulfil the description that has been extracted from the data set.

- Average profile completeness:

  The SMMEs that register on the online portal complete a profile to initiate the process. There is a percentage attributed to the level in which the profile is completed online. The average profile completeness is detailed in the data set.

The total number of SMMEs that expressed interest in engaging in the procurement process of Company X is extensive at a total of 3148 businesses. The overall average of profile completeness is 76.51% which is a relatively low percentage in comparison to further data analysis. The average is reduced as a result of a large portion (66.5%) of the

enterprises not engaging further in the interview process. 2095 business did not respond to interview requests and it is indicative by the low percentage of profile completeness at 70.34%. The businesses that engaged further amount to 1053 enterprises. The number of category A, B, and C enterprises from this total are 196, 649, and 75 respectively. The category A businesses have the highest percentage profile completeness, which can be expected from enterprises that have been assessed through the interview process to have the highest level of compliance to the registration process. The category B profile completeness is also high at 91.13%, only 1.47% behind the category A average. This is an indication that the businesses in this category are committed to engaging in the procurement process and are interested in executing business with the company, but the interview assessment has indicated that assistance will be required. The largest number of enterprises that were interviewed are in category B. This is to be expected within the SMME market, as there are many companies that want to do business, but need assistance in order to operate effectively. This validates this investigation and all research into the interventions required to enable SMMEs to operate successfully and promote enterprise development. The category C number of enterprises is the lowest number within the businesses that were interviewed at only 75 enterprises. This indicates that there is a small amount of businesses that are not recommended to execute business due to historical issues picked up in a due diligence assessment. This indicates a small amount of SMMEs that have historical issues that hinder further development. It is clear from the comparison of category B to C number of enterprises that more companies have sustainability and future related concerns than historical issues – as an example more companies have limitations on credit capacity or possible loan options as opposed to businesses that are in debt. The category D respondents have a low average profile completeness at 75.38% which is indicative of businesses not committed to the development of the enterprise, which is confirmed by the non-attendance at the interview to further enhance their procurement opportunity with the company.

Company X appointed a third party to conduct interviews to gather information that is used as the data in this investigation. The interviews are not the same as those conducted within this investigation as part of the qualitative assessment. The data set has information extracted from the third party interview that has been further categorised based on the questions related to the client portfolio of the SMME: the speciality of the enterprise or

industry that it services. The responses have been consolidated to options of primary and secondary services that the enterprise offers. There are many options of services offered, with the most prevalent selections indicated in the Table 4-2:

Table 4-2: Services selected by enterprises as primary and secondary offering

Description of service	Number of enterprises	
	Primary	Secondary
Civils and projects	421	238
Cleaning services / materials	289	307
Conveyor belt related	107	156
Electrical services / materials	214	226
Engineering services / materials	208	126
Equipment / machine hire	107	93
Heavy mining equipment hire / repair / parts	115	106
Plant maintenance / repair / parts	90	109
PPE	45	45
Transport & logistics	204	136

The extraction of the data set presented in Table 4-2 above indicates the number of enterprises registered on the portal that offer civils and projects as a primary service. The second highest number of enterprises indicate speciality in the cleaning services and supply of cleaning material. The two services are those that enable the development of enterprises, as the entry point to the industry, because they do not require extensive qualification or skill and capital input. This assessment is verified in consideration of electrical and engineering services requiring a specialised skilled workforce with electricians, and boiler makers, fitters and turners respectively. The equipment and machine related enterprises require capital and cash flow to enable the hiring out of items. The number of companies selecting the service and inter-relation between primary and secondary services is a key outcome from the quantitative analysis. These are assessed further in order to determine trends from the information that provide insight towards the research objective.

4.2.2. Key outcomes from data

4.2.2.1. Primary and secondary services

The analysis of primary and secondary services that the enterprises offer provides insight to the trends on the structuring of the various businesses in order to deliver the service. The data set has primary and secondary services indicated as an output from the registration process on the online portal. There are only primary and secondary options available: there is no option for additional services to be listed. The investigation is directed at the construction industry and the focus is directed at the services related to construction. The services listed in the data set that are applicable are civils and projects. The summary of civils and projects offered by the enterprises registered on the portal as either primary or secondary services is indicated in the table below:

Table 4-3: Summary of civil and projects service offerings

	Civils		Projects		Civils and projects	
	No. of enterprises	Average profile completeness	No. of enterprises	Average profile completeness	No. of enterprises	Average profile completeness
Primary service	357	80.74%	64	82.43%	421	81.00%
Secondary service	184	78.10%	54	80.74%	238	78.71%

The civils and project scope have close connection, and for the purpose of the investigation, the two services are consolidated in order to obtain accurate representation for enterprises that offer services directly related to the construction industry.

There are more enterprises that offer civils and projects as a primary service than a secondary service. This further validates the viability of construction as a feasible option for business owners as an entry point to engaging in economic activity. Only 35 enterprises offer civils and projects as both the primary and secondary services. These enterprises offer services that are exclusively catered for the construction market. The amount of enterprises that offer only construction services constitute a low percentage of the total businesses that have civils or projects as one of either the primary or secondary services. There is only 8.3% of the businesses that offer civils and projects as both primary and secondary services in comparison to the total companies that offer civils and projects

as a primary service, but offer an alternative secondary service. The mix between primary and secondary services requires further assessment in order to gain insight to the business model applied.

The two figures to follow compare the primary and secondary services that are civils and projects in comparison to the other categories that the enterprises have indicated as services offered. The percentages indicated are the portion of the services offered when civils and projects are maintained as constant, and aid assessment in relation to the filtered data set. It must be noted that this should not be confused with the assessment of the total data set, i.e. the overall percentage of singular civil and projects for primary and secondary services is 8.3% combined. In the assessment of each service offering keeping one constant in each case, the percentage is increased. The data set is minimised by adding the filter to keep one service constant. The analysis of each service offering independently is conducted in order to gain insight to trends in the combination of alternate options in service offering in order to gain insight to the business model.

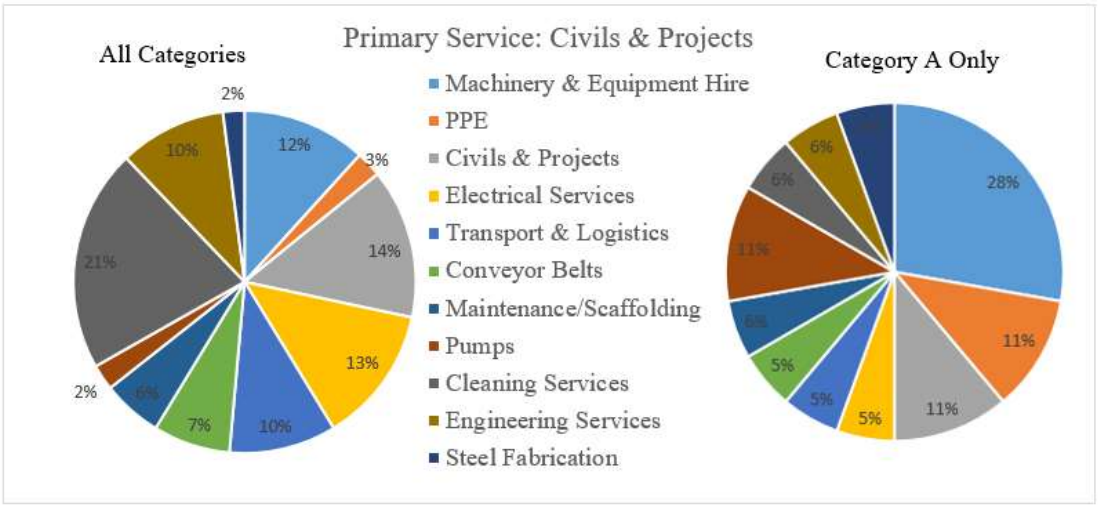

Figure 4-1: The secondary services offered by all categories and category A only enterprises only with primary services as civils and projects

The first assessment in Figure 4-1 reviews the secondary services offered when civils and projects are maintained as the primary service. The juxtaposition of the results from all the categories and category A only provides insight to the variance in approaches by the different companies and the level of development. The most common secondary service across all the categories is cleaning services. The category A prominent secondary service is machinery and equipment hire. A higher portion of the companies across all the

categories are at a lower level of development and hence do not have high levels of capital or cash flow to enable the purchasing of machinery and equipment. This substantiates the reason why machine and equipment hire is lower for all the categories, yet the largest secondary service offered by category A enterprises. Cleaning services do not require specialised skills and only requires labour input, which does not require extensive resources or financial input and enables the entry point for SMMEs. Cleaning services are generally long term contracts of two to three years, which is a favourable pairing to the civils and projects market which is notably volatile depending on availability of projects. The SMMEs will offer the two services in order to balance their continuity of work. However, the low income of cleaning services is offset with the inconsistent market of civils and projects that can offer higher income. The second highest proportion of secondary services is civils and projects across all the categories. This does provide insight that there is a relatively high proportion of SMMEs that focus only on the construction industry. This is marginally lower in the category A only results, but it is still a significant finding to note that there are companies that offer a singular service.

The assessment of the primary services offered when the secondary services is maintained at civils and projects provides similar insight. The option of civils and projects is the most prominent primary option across all the companies, indicating singularity in the services offered. Transport and logistics has a significant contribution as a primary service paired by 21% of companies with civils and projects as a secondary service. Transport and logistics is related to the market in which the investigation is conducted: mining and power generation. Transportation, i.e. of coal, often makes use of vehicles that would be used on construction sites, i.e. tipper trucks. This explains the linking of the two different markets. The transport and logistics are also often longer term agreements that pair well with the construction industry.

The category A responses present an over-whelming majority for machinery and equipment hire. The companies that have a higher degree of development prefer to market primarily as a plant hire company as opposed to a construction company. There can be many reasons for this: plant hire has a lower risk than construction as the hire of machines will need to be paid irrespective of the operational conditions that affect production which

is a key factor to successful projects. Plant hire is also more stable as the equipment can be rented out on long term contracts and the market is broader as it can be used in multiple applications.

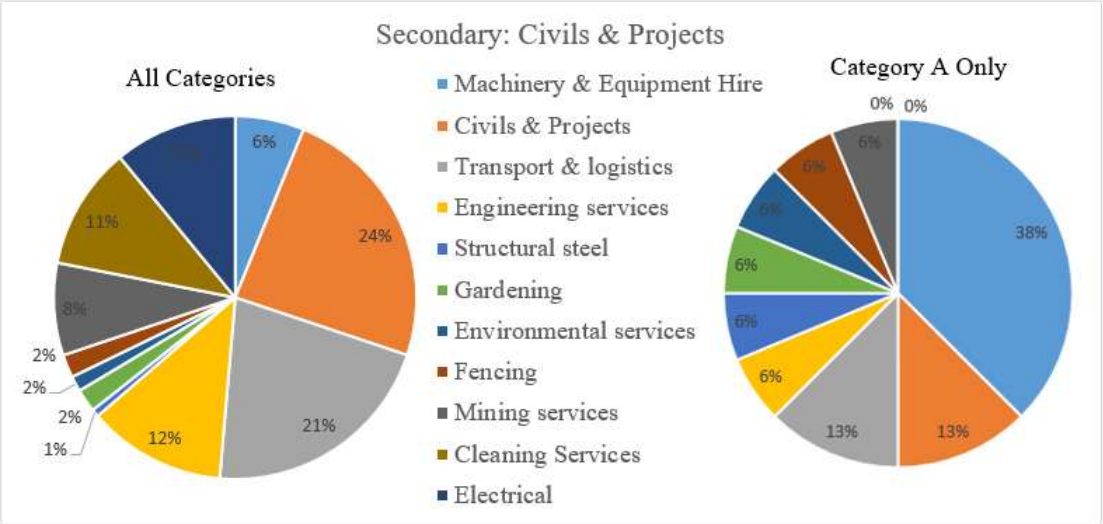

Figure 4-2: The primary services offered by all categories and category A only enterprises only with secondary services as civils and projects

The pairing of different services is a key driver to the selection of the business model that the enterprise selects to direct operations and align resources.

4.2.2.2. Work awarded

The assessment of work awarded to the enterprises is determined by the businesses that have vendor numbers. The presence of a vendor number indicates that work has been executed or is currently ongoing. The assessment of the category of company with civils and projects as either a primary or secondary service is detailed in Table 4-4.

There is a clear trend that the majority of companies that have been awarded work are from category A. This is to be expected, as these companies are business ready and are most likely to be selected through the procurement process. The most prevalent option for secondary services across the companies within this category is equipment and machine hire. There are only four businesses that have civil construction listed as the only service recorded in past work. The rest of the businesses record a mix of services related to the services indicated by the enterprise upon registration on the portal.

Table 4-4: Companies that have been awarded work indicated by presence of vendor number across civils and projects primary and secondary service offering

	Civils and projects		
	Number of companies	Profile completeness (expressed as %)	% of total number of companies
Primary			
With vendor numbers:	18	88%	
Of which: Category A	17	87%	94%
Of which: (blank)	1	100%	6%
Secondary			
With vendor numbers:	16	98%	
Of which: Category A	14	99%	88%
Of which: Category B	1	100%	6%
Of which: (blank)	1	83%	6%

4.2.2.3. Ownership

The ownership of the enterprise is indicated in Table 4-5. The level of black representation in the percentage share ownership of a business is a key deliverable in relation to the transformation requirements that are detailed in the Broad-based Black Economic Empowerment (B-BBEE) Act (2003). Compliance to key deliverables enables preferential procurement and many businesses structure ownership to enable a favourable position relative to this legislation.

Table 4-5: Ownership of category A companies that have been awarded work with Company X

	Civils and projects							
	Primary				Secondary			
	Category A with vendor numbers			All categories	Category A with vendor number			All categories
	No.	% Profile complete	% of total no.	% of total no.	No.	% Profile complete	% of total no.	% of total no.
50% Black Ownership	1	100.00 %	6%	0%	1	82.56%	6%	0%
100% Black Ownership	17	87.21%	94%	97%	15	98.84%	94%	98%
Of which								
0 % Black Women Ownership	12	86.05%	67%	66%	10	98.26%	63%	68%
51% Black Women Ownership	2	100.00 %	11%	3%	5	96.51%	31%	2%
100% Black Women ownership	4	87.50%	22%	20%	1	100.00 %	6%	18%

The overall percentages of the enterprises that are category A, and have a vendor number indicates that the businesses have executed work previous work with Company X. The percentage is compared to companies that are within all the categories, i.e. not category A only. The major variance is noted on the 51% black women ownership. The category A businesses have a higher percentage indicating more enterprises that are structuring ownership to enable a favourable position in relation to the preferential procurement points system. This is discussed further in the qualitative analysis.

4.2.2.4. Experience

The experience of the enterprise is indicated in the data set by the age of the business owner. This is utilised for the purpose of the investigation to provide insight to the experience of the entrepreneur that is directing the operations of the enterprise. The age is used as a proxy for the time the business owner has spent in industry to develop the business. The results are presented in Figure 4-3 across the various categories.

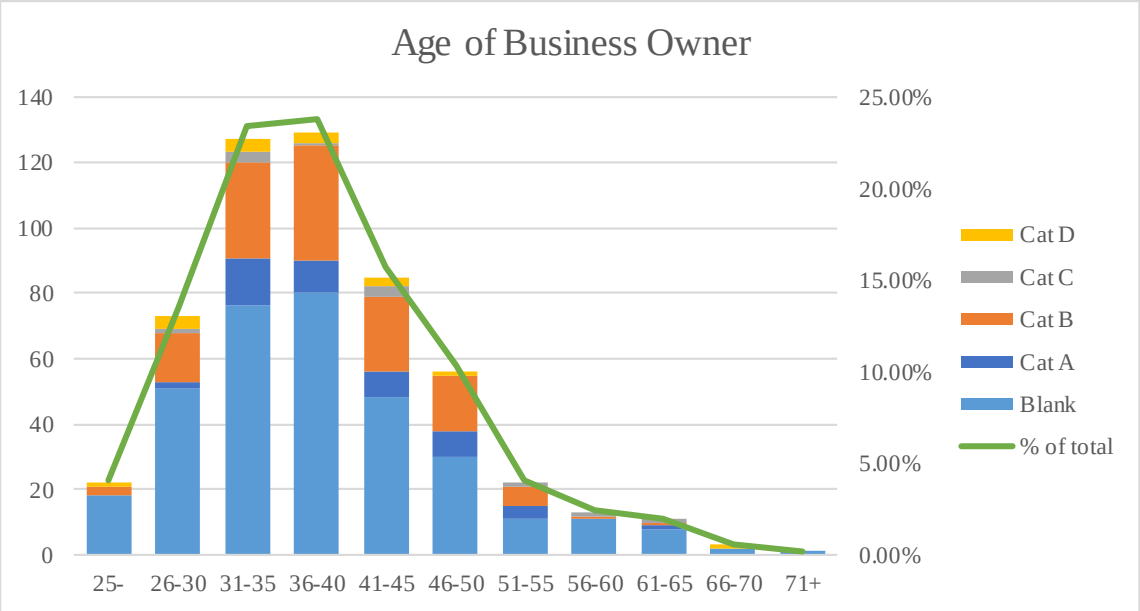

Figure 4-3: Age of business owners distributed across the various categories of enterprises

The majority of business owners are within the range of 31 to 40 years old: together the two sectors contribute 47.23% of the total entrepreneurs. This indicates that the minimum industry experience to fall within this category is thirteen years from completing a senior certificate (Grade 12 or matric) at school in South Africa. The average is 20 years' experience to be at optimum age of business owners. The experience is not singularly the owning of the company, but all time spent within the industry, including tertiary qualification.

4.2.3. Review of quantitative analysis

The quantitative assessment has highlighted key results that can provide insight into the business model implemented by the various enterprises. The analysis of primary and secondary services highlights that the majority of enterprises are not offering construction related services of civils and projects as the only service offered by the business. The smaller enterprises mostly offer cleaning services. The larger enterprises offer equipment and machine hire as a parallel service to civils and projects, with businesses making preference for these services to be their primary service as opposed to civils and projects. The businesses that offer equipment and machine hire largely are classified as category A enterprises. The businesses that are classified as category A are in a significant majority

at 91% across primary and secondary services selected to execute work and have been issued vendor numbers. There is a high percentage of 94% of these businesses that are owned by black entrepreneurs. There is a trend that the category A companies have a higher percentage of 51% black women owned structure of all the companies assessed. The most frequently recorded (mean median) age of the entrepreneur is 38 years old. The assessment of the age of the business owner suggests that 20 years of business experience is where most businesses are clustering.

The quantitative analysis was conducted as a first tier to the investigation in order to obtain overall trends and initiate further assessment into significant operational factors that would provide further insight to the business model of the enterprise in order to determine the viability of the business model to promote enterprise development. The companies selected for the qualitative assessment were identified from the data set. The summary of the businesses selected for further interview are indicated in Table 4-6:

The outcome from the quantitative analysis will form part of the discussion in determining the conceptual business model. The development of a generalised conceptual business model will validate applicability to all enterprises.

Table 4-6: Enterprises from quantitative data set that are selected for further qualitative analysis

	Cat.	% Profile complete	Primary service	Secondary service	Vendor no.	Work description	% of black ownership	% of black women ownership	Age	Note
1	A	100%	Civils	PPE	Yes	Machine & equipment hire	100%	51%	41	Civils as primary service, but work done is plant hire
2	A	100%	Machine & equipment hire	Projects	Yes	Building works	100%	0%	32	Projects is secondary and building works done. Young Cat. A owner
3	B	100%	Civils	Engineering services	No	N/A	100%	0%	24	SMME that has not been awarded. Young Cat. B
4	A	100%	Civils	Cleaning services	Yes	Civils	100%	0%	37	Civils and cleaning services analysis
5	A	100%	Conveyor cleaning	Discard handling	Yes	Construction	100%	100 %	38	Civils not registered as primary or secondary, but construction work done
6	A	100%	Mining services	Civils	Yes	Civils and crushing	100%	51%	41	Civils as secondary
7	Blank	100%	Civils	Projects	Yes	Civils	51%	51%	29	Blank category, but vendor number issued for civils work done
8	A	100%	Machine & equipment hire	Civils	Yes	Machine & equipment hire	100%	51%	54	Plant hire and civils analysis

There are a range of enterprises selected that address various trends developed from the data set and the quantitative analysis. The further investigation into these businesses through a semi-structured interview enables insight into the business model. The enterprises are referred to as Company 1 to Company 8 in the qualitative analysis in accordance with the requirements of the ethics approval.

4.3. Qualitative analysis

The qualitative data for the analysis was collected using semi-structured interviews with representatives of companies. The representatives were in principal the owners of the company, but in most cases the delegation varied from chief operation officer (CEO), managing director, and main shareholder. The representative in all cases was the key individual to the operation of the company. This ensured that the information gathered was valid and applicable to the analysis of the business model. The interviews assessed the individual in consideration to the business in order to determine the background to the establishment of the business prior to the in depth assessment of the business and its model. Starting the discussion with an overview of how the business owner developed the company provided the insight required into decisions made with the operational plan of the company, and thus leading to the outline of the business model.

The interview then progressed to cover questions related to the choice of the business model in order to gather data specifically directed towards the research objective. The discussion had a series of questions that were compiled from the insight gained in the literature review to ensure a framework for the assessment was achieved. There was free discussion and open engagement between the structured questions in order to facilitate the extraction of the information pertaining to the choice of business model that the entrepreneur implemented. The consciousness of the implementation of a particular model was often not obvious to the entrepreneurs engaged in the assessment. However, over the duration of the interview, it became clear to most entrepreneurs that a clear business model was implemented whether it was knowingly done or whether as a consequence of the operational factors and business model elements.

There were eight companies interviewed in order to obtain an expressive data set from which to extract information towards the research objective. The key aspects describing the companies interviewed are detailed in Table 4-7.

Table 4-7: Description of companies interviewed

	Start date of company	Date of company registration	Operation of company (years)	CIDB grading	Interviewee position	Age of interviewee	2019 Turnover (R million)	Asset register (R million)
1	2018	2017	2	1	Managing Director	41	2.0	0
2	2017	2017	3	3	Director	32	8.0	0.1
3	2016	2015	4	3	Managing Director	23	1.5	0
4	2010	2010	10	8	CEO	35	48.0	31
5	2014	2018	6	not reg.	Managing Director	38	9.3	1.1
6	2017	2017	7	6	Managing Director	44	19.7	12.7
7	1997	2014	23	8	Director	28	64.3	60
8	1997	2014	23	8	Managing Member	54	134	130

The average age of company owners is thirty four and the average operation of the company from registration is five years. There are companies that have been operating before the date of registration. There is a clear trend that the companies that have been operating longer have a larger 2019 turnover – indicating a more developed company. There is a clear divide between companies based on the 2019 turnover and asset register that requires the review of categorisation of enterprise development. Table 2-1 of this research report makes reference to the classification of SMMEs in terms of the National Small Business Act (2004). The guidelines for the construction industry for medium enterprises is annual turnover of R26 million and a total gross asset value less than R5 million. There are four companies below and four companies above these figures. This enables analysis across the different levels of development of the companies interviewed. There are four companies that are below the medium category. There are four companies that have developed to a point where they have exceed the minimum requirements of a medium enterprise. The four businesses that have developed to large enterprises are insightful to indicate the viability of business models to promote enterprise development and to elucidate the operational controls implemented in the development process.

The interviews conducted extended on average eighty minutes: the longest interview was with Company 6 at 108 minutes, and the shortest with Company 5 at 65 minutes. The discussion was free-flowing and all the respondents were open and forthcoming with the

information provided. The semi-structured interview largely followed the format in two sections of the interview. The first was a general discussion establishing a timeline of the company's development. The development of the timeline assisted in extracting the operational factors of the business the influenced its development, as well as plans for potential growth. This was particularly insightful for the enterprises that have developed beyond the medium classification of SMMEs. The second section of the interview was aimed at extracting information specifically in alignment with the business model elements that had been determined from the literature review. This enabled the information to be presented in the form of the matrix.

4.3.1. Introduction to themes in the matrix

The indices of the matrix are identified from the literature review. The basis for this selection is the operational factors that were determined from an assessment of existing business models that have been implemented in previous studies. These operational factors have been used in the interview matrix to frame the data in different sections that will lead to the selection of the business model. Each operational factor is detailed as follows:

- Procurement:

  The first operational factor addresses the sourcing of work. Obtaining projects is the initiator of the construction industry activity, and hence the first assessment of the business.

- Service delivery:

  The research conducted into the franchising of water maintenance services (Wall, 2009) abstracted a key component to the success of the model implemented as the improved service delivery. Service delivery is a common term in the provision of public services and infrastructure in South Africa. Service delivery, for the purposes of this investigation, is determined as the outcome of complying with a minimum requirement. Poor service delivery will result from non-achievement of

the prerequisite conditions. In terms of this investigation, companies are contracted to complete projects that will either construct or maintain infrastructure. The company enters into an agreement with the client to achieve this mandate. The failure to achieve this results in poor service delivery. This is a primary factor to assess, as often projects are not completed due to the contractor not being able to fulfil its obligations. Meeting the minimum requirement of delivering the intended outcome is a key factor to test when assessing the business model.

- Quality, access, use:

  The accepted definition of quality in relation to the construction industry is that the project (product and/or services) achieves a predetermined standard. The quality referred to in the investigation is the output of workmanship from the company in comparison to standards within the South African construction industry. This entails the level of adherence to the requirements of the final product and potential improvements to ensure client satisfaction. The companies that deliver projects to a satisfactory or higher level can gain reputation with clients as preferred vendors and can lead to the award of additional projects. Quality has been linked in this analysis to the investigation into the health services in low-income countries (Montagu, 2002) which indicated that the key indicator to the success of a franchise model can be observed by the access and use of the service provided by the company or facility. The component is linked to quality: if the quality of the facility is of an acceptable level it would result in additional people using the facility. Therefore only quality is considered in the analysis.

- Human capital requirement:

  The construction industry has a range of stakeholders that cover a broad range of entry levels. This enables the entry of many unskilled employees to execute tasks required for the completion of projects. The management of this work force requires adequate resourcing to ensure supervision and support services are provided. This entails an extensive human capital requirement for the project to

be implanted. A company seeking to execute projects successfully will be required to align the human capital with the needs of the project. The human capital needs include the direct and indirect requirements. Direct human capital includes the work force required to execute the construction activities: unskilled, semi-skilled, skilled, and operators of machines. The indirect human capital requirements include: supervision; health, safety and environment aspects; community liaison officer; management; commercial; financial; procurement; and ownership roles that need to be filled to enable the company to operate.

- Equipment:

  Construction is a resource intensive industry: there is a need for human capital and equipment or machinery to execute tasks necessary to complete projects. The need for human capital has been described above, and this factor expands on the next key resource: equipment. Equipment typically has a high capital requirement, and the selection of an equipment strategy provides insight to the overall selection of business model in relation to operational and financial and cash flow factors in particular. The data gathered on equipment also provides insight to the business model of the company.

- Construction materials:

  The literature review into supply chain models inferred the need to include the assessment of construction materials as a factor to be analysed when investigating the business model. The use of a supply chain model is directly influenced by the strategy around the handling of materials: the manufacturing, sourcing and procurement, and logistics in delivering the material to site. These factors influence the business model selection and material costs form a large portion of construction costs, highlighting the need to plan the management of construction materials.

- Ownership:

  The South African Broad-Based Black Economic Empowerment Act 53 of 2003 has prescriptive requirements of ownership. There are levels of compliance and the Preferential Procurement Policy Framework Act 5 of 2000 details a points system for higher levels of compliance that will favour a company in the award of construction projects. Companies that have ownership structures that ensure maximum alignment with the legislation will have higher preference in procuring projects.

- Production:

  Production efficiency is a key factor to the operational plan of a company. The strategy to manage resources and wastage is a key factor in the selection of the overall business model of the company. The ability of the company to ensure that the resources are continuously utilised will ensure the efficient use of the resources and result in an economical advantage. If these resources are not managed in a means to ensure the sustainability of the business, the company will not be in a competitive position. The handling of production is another key component that provides insight to the selection of the business model. The construction industry is not always in a controlled environment: the nature of the works exposes all stakeholders to additional risk in the execution of projects. The risk translates to waste in the materials and services provided, which is a concern in an industry that requires intensive management. This is another function of production that is assessed in this investigation.

- Primary and secondary services:

  The construction industry has a range of stakeholders across many levels of services and suppliers. The quantitative analysis indicated the different services offered as a key determinant to the enterprise. The construction industry is noted as incorporating a range of different services that can be classified as separate industries, but work in synergy to enable the execution of construction projects. This includes labour focused services, product manufacturing, logistics, and many

more. Often companies incorporate additional services to the company profile to ensure sustainability of the company. There are many factors to the selection of primary and secondary services offered by companies, influenced by the background of the entrepreneur, the experience gained over the operation of the business, or resources available. The primary, secondary, or more services offered, as well as the relation between the different services is an operational factor that needs to be assessed when analysing the business model. It can be possible that a construction company also offers services in other industries and the influence of this decision on the viability of the business model needs to be analysed in relation to the ability to promote enterprise development.

The matrix indices are used as the operational factors in the analysis. The analysis of each component in relation to the actual data obtained from the semi-structured interviews is discussed.

4.3.2. The outcomes from the interviews aligned with the matrix indices

The information from the semi-structured interviews is presented in relation to the operational factors that form the index of the matrix framework. The results from the investigation are expanded under each index to analyse each factor:

4.3.2.1. Procurement

There is a focus on procurement strategies within the construction industry: this has been indicated in this investigation, citing interventions such as the NCDP that has been implemented by the CIDB and the generation of the Infrastructure Procurement and Delivery Management (IPDM) guideline (Laryea, 2019). The approach to procurement in this investigation is to understand the perception and actual measures taken by the companies interviewed. This assessment provides insight into the planned approach by the companies within the Company X data set to procuring projects.

The first assessment from the information provided by the respondents is the targeted procurement as applied by the private sector. It was noted in the research method that the

target area of the investigation had extensive mining and thus private company opportunity. The response confirms that the contractors focus on this opportunity, with procurement targeted towards the private sector, which is largely mining companies. The State Owned Enterprise (SOE) in the region (Eskom) has also generated targeted procurement strategies, also affecting the business model of the companies. Three companies execute work for Eskom. The works that these companies are executing are largely not civil or building related: the scope covers electrical, supply and manufacturing. The companies interviewed indicate that there are limited opportunities in construction projects from Eskom, and most have evolved out of the construction market to service other needs. The companies have indicated the payment by Eskom for works executed has not been an issue. There is further assessment made on the procurement strategy related to public sector work. Three companies have indicated that it is too risky to work for government institutions, citing non-payment of works executed on projects as the main reason for not tendering on government projects. Company 1 indicated that a minimum of six months free cash flow will be required before executing any work for the government. Company 1 has previously executed works in the public sector market and indicates that political interference had resulted in delayed payment and inhibited progress on the project. Company 5 and 7 indicated that the bad reputation of public institutions deterred them from submitting tenders. Company 4 executes work for a government institution and had only taken on public work seven years after the establishment of the company. The works are significant in value – amounting to 42% of the 2019 turnover for the company for two large projects. Company 8 indicated that the works that are executed within the public sector market are only conducted on a sub-contract basis. Company 8 elucidated that their strategy is to attend public sector procurement site inspections, not with the intention to tender directly on the works, but rather to network with other contractors that will submit tenders directly and target sub-contracting opportunities for either equipment hire or a portion of the construction works. The risk of government work as cited by the companies is high, but as demonstrated by Company 4, and indicated by four of the companies interviewed: Government projects are large and it is necessary to execute public projects in order to develop. Company 4 indicated that the strategy implemented with regards to the procurement of works between private and public projects is to ensure a balance to enable positive cash flow

management. Government work generates high income, but is inconsistent in access and payment. Private work is stable and consistent, but there are a range of small projects that have a slow cash flow. The balance of these projects is required to ensure development. Company 4 has 52% of 2019's turnover attributed to private work over eight projects, which is a positive distribution enabling cash flow management. The amount of projects in the private sector indicates the higher level of procurement required to generate the level of income.

The 2019 turnover for the companies interviewed is analysed in relation to the client for each project or income generating work. The results are summarised in Figure 4-4. A significant portion of the income across the companies is based on private work that is largely for mining companies. There is minor income generated from domestic construction works, however this is still from the private sector, just on a smaller scale, and hence consolidated under the total private sector percentage.

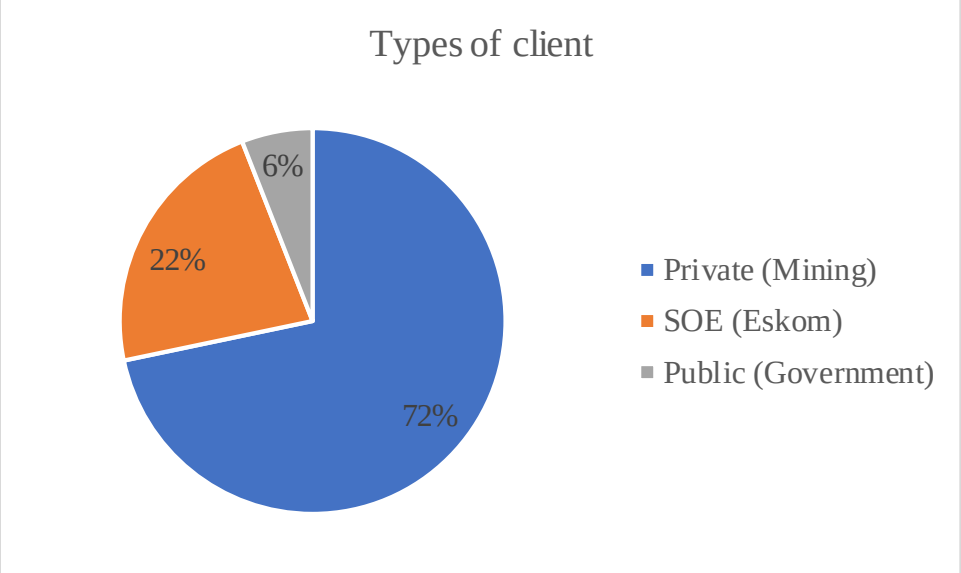

Figure 4-4: Distribution of projects – based on 2019 turnover

The strategy of companies to focus procurement, and hence execution of projects, on the private sector enables continuous and stable cash flow. This is a key requirement for SMMEs and is critical factor in the selection of business model. The scope of the study and the benefits to the private opportunity within the region have been stated previously in this report. The companies interviewed were questioned on the locality of work: 87.5% of companies indicated that projects executed in 2019 and current projects are within the

region. Company 1 indicated operations within the province. The clear majority contain operations within the region. This is likely attributed to the opportunity of private work within the region. The key finding is the focus of procurement within the region on private clients.

The analysis of the percentage of mark-up on tenders is another key indicator to the strategy of the business. Figure 4-5 details the general mark-up that the companies implement on tender submissions.

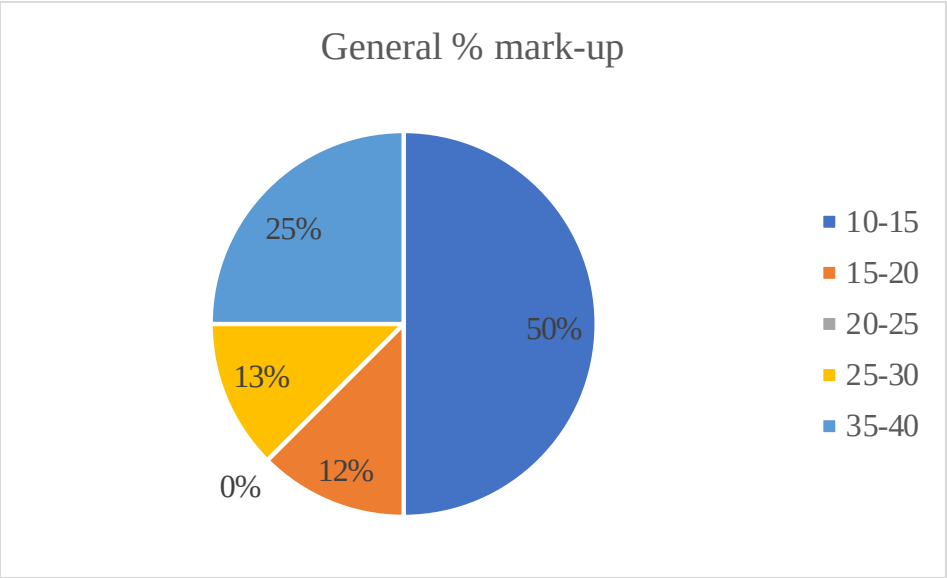

Figure 4-5: General % mark-up on tenders

The highest percentage (50%) of responses from the interviews indicate 10-15% as the general mark-up on tenders. Conversely, 25% indicate 35-40% mark-up. The largest proportion of companies' responses with large variance between the percentage mark-up is assessed in relation to companies. The mark-up of 35-40% is high by industry standards: the companies with this mark-up are in supply and manufacturing, which generally yields higher mark-ups. The percentage mark-up bracket between 10-15% enables competitive pricing and the majority of companies' price within this range. Company 1 indicated that initially a mark-up of 25% was added to tender submissions, but this had to be reduced to 10% to be competitive. Company 7 and 8 have similar strategies in pricing structure and indicated that a mark-up between 7-12% and 10-15% respectively was required on larger projects where procurement was competitive, but

once on site higher percentages between 20-40% for Company 7 and 30-35% for Company 8 is possible on smaller projects. The trend is clear that the more developed companies are targeting larger projects and have lower mark-up. These companies do indicate that they still quote on small works, and these have higher mark-ups.

The tendering is largely executed by the owner across all the companies. Company 4 outsources the services of a quantity surveyor to assist with the compilation of tenders when necessary for larger projects, but still has input on the quantification of rates. Company 8 has a full time employee focusing on tenders and quotes. There is an average of 20 proposal submissions a month across all the companies interviewed of a combination of large tenders and small quotes. Company 7 and 8 both submit 5 large tenders a month. The rate at which the companies interviewed successfully obtain work from the tenders or quotes submitted varies: Company 2 has an 8% success rate across largely small building works. Company 4 has a high success rate of 33% combined between small, medium, and large projects. Company 7 and 8 both have low success rates of 4% and 1% respectively. The tendering on larger projects appears to yield lower success rates.

4.3.2.2. Service delivery

Service delivery is a key requirement for the provision of infrastructure. The attainment of the expected outcome is critical to the end users of the infrastructure. The end users are in most cases the client, and meeting the client's expectations is advantageous in ensuring return work. As such, it is clear that there is consensus that being able to deliver a successful project to the client is key to the sustainability of the company. Service delivery follows in succession to the previous section discussed: procurement; the progression from the award of a project; to the execution of the works to deliver a complete project. It is of prime importance to complete projects and conclude the undertaking that was agreed upon award of a project following the procurement process. The key factor indicated by the interviewees to ensure service delivery is to obtain client satisfaction. The approaches that the companies interviewed applied in order to ensure client satisfaction are varied. The key factors to ensuring client satisfaction and in so doing enabling service delivery companies cited are the following:

- Quality of the works (three companies).
- Relationships (three companies).
- Continuity of work or long term maintenance contracts (three companies).
- Offering value added services beyond construction such as consultation enabling turn-key projects (two companies) and manufacturing (one company).

These factors will determine the approach to the business model. The approach of the company will affect how the company puts other operational factors in place to deliver the service. This highlights the connectivity between operational factors, and when formulating a business model all factors need to be considered and the connection between them. There is a trend in all the factors in assuring service delivery, and this is the achievement of client satisfaction and the quality of works. The achievement of acceptable quality levels is assessed in the next operational factor.

4.3.2.3. Quality, access, use

The assurance of the acceptable quality of the construction works is a key operational factor to the development of the business model to ensure the success of the company. The companies interviewed displayed responses that converged on four reasons that they attributed to the structure of the company to the achievement of the quality levels required to deliver successful projects. These four features are indicated as follows:

- Entrepreneur's experience:
  The personal experience of the owner of the company has been raised by two entrepreneurs as a means of ensuring the achievement of quality in the execution of the works. The experience gained from these two entrepreneurs come from being previously employed within large companies with credible quality systems that the entrepreneurs have gained insight on and implemented within their own companies.

- Skill level of employees:
  Three companies directly indicated that the internal capacity of their employees ensures the quality of the end product. This observation came from two smaller

companies and one larger company. The fourth company indicated that the strategic partnerships with larger companies ensured the achievement of required quality levels. The companies engaged will bring skilled employees to the partnership.

- Specialising/ niche market:

  There was one company that started out with general construction and then developed the business into a niche market which the entrepreneur indicated was a key factor to delivering a quality product. The convergence on a single product ensured focus on the activity to ensure a quality finish. The company developed the supply chain, including manufacturing, within that niche market to further control quality. The quality controls have developed to the implementation of a software system to effectively control the quality of the product manufactured to ensure conformance with requirements.

- Responsive to client's requirements:

  Company 4 indicated that the approach to deliver a quality project is to respond to the requirements of the client. In this manner there is assurance that the end product will be approved, as the end user has indicated the requirements to enable the achievement of this approval. This factor is connected to the access and use of the project: the response to the client's requirements will ensure that end user will utilise the project. The entrepreneur indicated that this strategy ensured continued work as the client would issue repeat projects to the company.

The percentage spread between the factors is indicated in Figure 4-6:

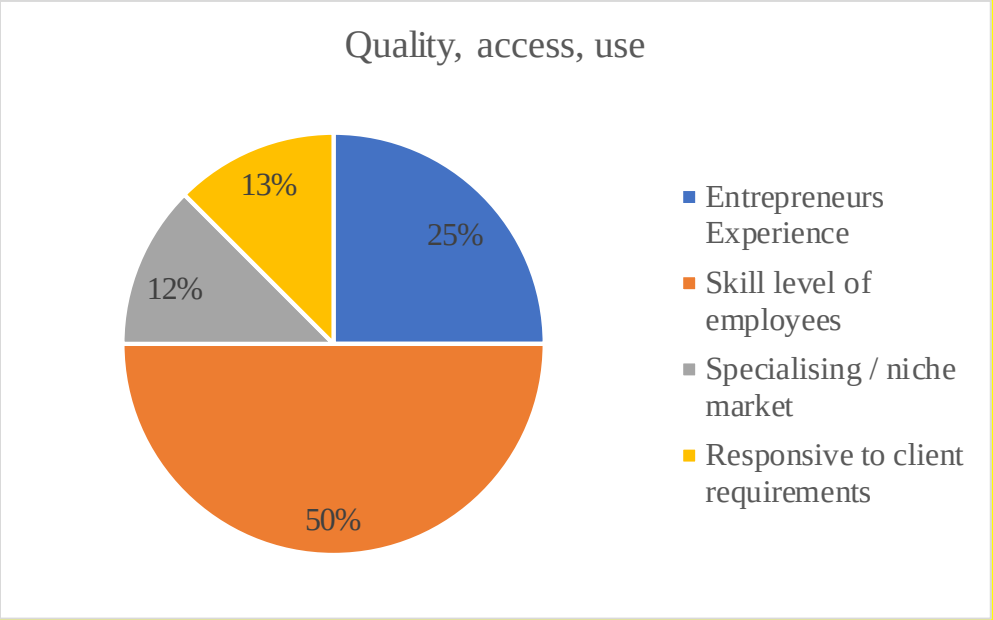

Figure 4-6: Strategy of companies to ensure quality levels are achieved

The skill level of the employees is attributed as the highest percentage of influence. This will have an impact on the company's human capital requirement, which is assessed as the next operational factor.

4.3.2.4. Human capital requirement

The human capital can be assessed in two sections of the business: work force and support staff.

Work force:

The approach to quality is evident in the level of skills employed in the work force of the company. Figure 4-7 illustrates the percentage make-up of the skill level of the work force across the companies interviewed. The overall average is 51% skilled employees which indicates the reliance on employing skilled people to deliver quality of the finished works. Companies 5, 7, and 8 indicated that skill level is a key aspect to delivering a high quality project: these companies have an average of 62% skilled employees. Company 4 indicated that the response to the client's requirements is key to delivering projects and

the company has a relatively low percentage of skilled employees of 33%, which is equal to the amount of limited duration employees. Limited duration employees are paid at a lower rate, enabling higher levels of flexibility in the use of labour, as it is not as costly. The use of local labour is often a deliverable from the client's side. The structuring of the business to enable the employment of local labour through limited duration contracts enables the achievement of these targets and is another means of ensuring client satisfaction.

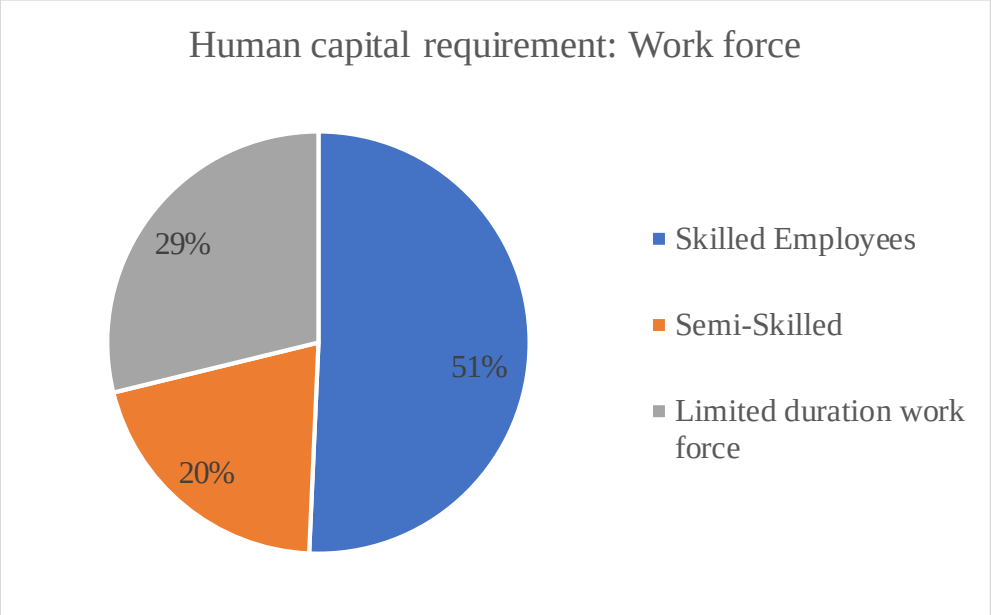

Figure 4-7: Human capital requirement as per skill level

Support staff:

The support staff includes the employees of the company that enable the work force and operation of the company to run effectively. Operational management, administration, financial management, procurement, health and safety, equipment management and maintenance are aspects of the business that need to be controlled. The appointment of employees to attend to these functional areas is assessed in the support staff human capital requirement. Two companies (Company 1 and 3) do not employ any support staff, and are managed by the entrepreneur only across all aspects of the business. These two companies have the lowest turn-over in the companies assessed, R 2 million and R 1 million respectively. The implication is that the higher the turn-over, the higher the need

for support staff is required. This is clear from the assessment of the companies with a higher turn-over employing higher levels of support staff. The level of support staff also correlates with the approach to quality control. Company 2 has a high level of support staff to work force percentage of 50%. The entrepreneur has experience from larger companies and this has influenced the set-up of the human capital requirement of the company. The average of support staff to work force across all the companies assessed is 12%. If Company 2 is not included in this assessment the average is reduced to 7%. Company 7 and 8 have the highest number of support staff, with the average number of employees and percentage of support staff to work force between the two companies being 10 employees and 10% respectively. The higher number can be attributed to a series of factors: however a trend can be determined when assessing the three larger companies within this investigation: Company 4, 7, and 8. Company 4 has the lowest support staff of two employees and two out-sourced external services – a total of 4 individuals amounting to 7% support staff to work force. Company 4 does not offer external equipment hire as a service, but Company 7 and 8 do. The external hire of equipment requires additional support staff to manage this aspect of the business. The larger the fleet the more employees required to support this service.

4.3.2.5. Equipment

The trend is clear in the assessment of equipment for each company: The higher the turn-over the more equipment that the company owns. For the purpose of this assessment, the equipment has been divided in two categories: large plant and small plant. Large plant is equipment used in the construction or mining industry, namely a TLB (Tractor-loaded-backhoe) or larger. Small equipment is deemed as machinery smaller than a TLB that enables the execution of works, for example, generators, walk-behind compactors. The larger companies (Company 4, 6, 7 and 8) have significant fleet sizes of large plant that can be divided in two categories, servicing internal and external need:

- Internal need:

  Company 4 and 6 both have six items of large plant. This equipment is largely for the use in the execution of the works that the company is involved with. The

equipment is purchased out of the need of the company to execute its own operations.

- External need:

  Company 7 and 8 have significant fleet sizes. Both the companies use the equipment to service their internal need on projects, but also operate a plant hire business where they hire the equipment to other companies. The operation is an additional revenue stream for the company and affects the structure of the business model, similar to what has already been indicated in the human capital requirements. Company 7 has a long-standing history within the industry and this is clear in the fleet size, which is extensive at 60 items. Company 8 has been operating for 23 years which also validates the link between companies that have been operating for longer time enabled to have a larger fleet size. Company 8 has established a separate company exclusively for plant hire. The business owner indicated that the plant hire arm of the company was a reaction to the internal construction requirements of long term construction projects. The owner has come to the realisation that equipment can be paid off over the duration of a project, and hiring plant from other companies was not sustainable.

The financing of the equipment is a key determinant in equipment within the business and the structuring of the business model. Companies 7 and 8, with significant turnover and asset registers, have purchased the equipment through their internal capacity. This option is favourable as it reduces the cost of financing. Company 7 has cited this factor as a key means to ensuring the company is well placed to procure additional work, as the overheads are reduced by not having to factor in the cost for finance. Company 4, 6, and 8 indicated that the purchasing of significant items was assisted by the supplier itself, who offered structured financial loans to enable the sale. The companies indicated that credit applications facilitated by the bank, financial institutions specifically aimed at small enterprises, or even government institutions are not desirable and were not utilised. Company 4 has an extensive property portfolio and makes use of the bond to access funds for the purchasing of equipment. Company 6 has registered more than one company and uses intercompany loans to make significant purchases. These two companies make use

of their internal capacity to invest further within their companies to make large purchases for equipment. The consensus among all respondents in this investigation is that the funds generated in the company's operations need to be invested back into the business in order to enable the development of the enterprise.

4.3.2.6. Construction materials

The procurement of construction materials displays a similar finding to the financial management of equipment. All the companies have credit facilities with suppliers, but this is a tool to assist with cash flow management. The ideal is to purchase construction materials as a cash sale, not on credit. The companies make use of internal capacity to enable cash purchases, i.e. drawing from bonds, using funds generated by other businesses, maintaining a positive cash flow to have funds readily available. Company 4 and 7 started with building projects that have an extensive requirement for construction materials. These companies indicated that procurement is key to their pricing strategy: the development of relationships with suppliers over time has enabled the companies to secure better rates. The selection of suppliers is also critical to attaining the most economical solution – often small companies procure in small quantities and go to hardware stores, but both of these companies (4 and 7) procure in larger quantities which enables the use of wholesalers at better rates.

Company 6 developed an internal supply-chain in response to the procurement of construction material. Through the execution of projects, the company noted an opportunity in the supply of a specific niche construction material and decided to manufacture it internally. This developed into a manufacturing operation and the installation is executed by the projects team. The decision to manufacture the product internally has influenced the business model and developed the company into a niche market.

4.3.2.7. Ownership

The ownership of the companies is an indication of the selection of the company to place itself in the market in response to the requirements defined in the legislation applicable to the South African construction industry. The Preferential Procurement Policy Framework Act 5 of 2000 details a points system to implement the principles detailed in the Broad-Based Black Economic Empowerment Act 53 of 2003. The CIDB is aligned with these Acts and requires the points system in the procurement of projects within the construction industry. The highest points are awarded to companies that have majority black female ownership, and as such, the composition of the ownership structure of a company can have a large influence on the procurement of projects. This affects the structure of the business model, as the ownership percentage shareholding defines the financial management of the operation. The influence is clear within the companies interviewed in this investigation: 62.5% of the companies have majority female ownership. The detail within the black female ownership companies is expanded as flows: Company 5 has 100% of two companies, and Company 6 has 100% ownership of one company and 51% ownership of another company. In these two cases a black female owner was interviewed. Company 1, 7, and 8 have 51% black female ownership but the interview was conducted with the 49% share-holder. These companies indicated that the ownership structure was instituted within the company to enable a favourable position in the procurement of projects. The 51% black female shareholder in these cases is not operational. Company 1 and 8 have appointed close family relations to hold majority share; sister and wife respectively. Company 7 has an extensive history as a white owned and operated business: in 1997 the company was registered with 27% black ownership. In order to strategically place themselves in a favourable procurement position a black female partner was introduced to the business in 2014 with majority shareholding. The remaining 49% shareholding is with a white female representative from the original family business. The 51% shareholder does not have a construction background, and only plays a role in financial investment into the company to assist with cash flow and the procurement of projects.

Table 4-8: Ownership structure of companies

	100% Black male	51% Black female		100% Black female
		49 % Black male	49 % White female	
Company 1		1		
Company 2	1			
Company 3	1			
Company 4	1			
Company 5				1
Company 6		1		
Company 7			1	
Company 8		1		

4.3.2.8. Production

Production is assessed across the entire business in the effective management of resources across all operations and the resultant waste management as key indicators. There are two key trends in the responses from the companies interviewed, the management across two key aspects:

- Projects.
- Companies.

<u>Projects:</u>

The smaller contractors, Company 1 and 3, maintain a low resource baseline that they keep on a flexible basis, and lay off human capital or off-hire equipment when no required. The larger companies have a permanent workforce and extensive fleet size resulting in the requirement of a sustainable solution, which is through the procurement of projects. The selection of projects that the contractor procures will enable the effective use of resources to ensure a productive business. Company 4, 5, and 7 have procurement strategies that enable the management of resources and secure continuity of cash flow. The companies will secure large projects and while on site they will take on small works that are quoted during the execution of the large project to keep continuity of the project team. Company 7 consolidates these smaller works to the locale of the project to ensure efficient management of the resources. Company 4 has secured long term maintenance

contracts that have low resource requirements, but continuity of work. In the event that additional resources are available, they are allocated to the maintenance projects to execute works ahead of schedule. Company 5 has two companies where the services offered are related, and transitions resources between the two where necessary. The one company has long term electrical maintenance projects and when the construction resources are not occupied on projects they can be allocated to execute certain activities within the electrical work to ensure continuity of work. Company 5's owner did indicate that it is more critical to secure continuity of cash flow. The businesses with diversified scope ensure continuous income as they service different needs and this ensures there will always be a stream of income.

Companies:

As indicated by Company 5, the productivity of the company is effectively achieved through cash flow management. Company 5 had two related companies, but a total of three registered companies where cash flow is enabled through inter-company transactions. Company 6 has multiple unrelated companies that manage cash flow holistically and in turn promote productivity of the enterprise as a whole. Of the eight companies investigated, seven had alternate services that were not construction related in order to ensure continuity of cash flow and productivity of the business. 50% of the business owners interviewed decided to structure this approach in the registration of separate companies. The management of resources between the companies ensures not only productivity, but sustainability. The shared services to support each business and the alternate revenue streams promote productivity. This gives rise to the next operational factor to the structuring of the business model: the implementation of primary and secondary services within the services offered by the enterprise.

4.3.2.9. Primary and secondary services

The primary and secondary services refers to the offerings by the company. The offering is distinguished by the type of services offered and the alignment to an industrial sector. The type of services offered has been evaluated in consideration to the framework of types of services as defined by the CIDB. The services for this investigation are as follows:

Table 4-9: Service offering from data in relation to CIDB industry types

Types of services emanating from this investigation	CIDB types of works
Construction – building and civils	Civil Engineering (CE) and General Building Works (GB)
Electrical	Electrical engineering works – Building (EB) and Electrical engineering works – Infrastructure (EP)
Engineering	Mechanical Engineering works (ME)
Materials supply	N/A
Consulting	N/A
Maintenance and cleaning	N/A
Hospitality	N/A
Structural steel fabrication	N/A

The services offered by each company investigated are detailed in Table 4-9:

Table 4-10: Service offerings of companies interviewed

	Primary service	Secondary service	Tertiary service	Quaternary service
Company 1	Building	Supply		
Company 2	Building	Engineering		
Company 3	Building	Supply	Consulting	
Company 4	Building and civils	Maintenance and cleaning	Property development	
Company 5	Building	Electrical	Maintenance and cleaning	Hospitality
Company 6	Mining	Manufacturing	Hospitality	
Company 7	Building and civils			
Company 8	Steel fabrication	Building and civils		

There is only one company that exclusively offers construction as a singular service, namely Company 7, but within the construction industry offers both building and civil

services. The other companies offer a range of services: the further assessment is whether they are within the construction industry, or extend to other industries. Two companies offer alternate services, but still within the construction industry. Five companies assessed in this investigation offer secondary and tertiary services that are not in the construction industry and some completely unrelated, such as hospitality. Company 5 owns a hair salon and Company 6 owns a boutique hotel. The majority of companies (62.5%) rely on more than one industry to ensure the sustainability of the enterprise.

4.3.3. Review of qualitative analysis

The assessment of the operation factors provides insight to the actual operational items affecting the business model. The relationship between these factors is consolidated in the discussion using the Framework Method and the matrix that has been set up for this investigation to converge at a conclusion of the research question.

5. RESULTS DISCUSSION

The discussion of the results expands on the Framework Method to assess conceptual business models which were analysed from the operational factors, now taking into account the second index of the matrix structure: the business model elements. The necessity of this expansion of the discussion is to compare the analysis of this investigation in relation to previous studies that were assessed in the literature review. The business model elements are then used as a tool to frame the comparison between the data obtained from this investigation to the information that has been examined into business models from previous studies. The discussion between the analysis from this investigation and the previous studies conducted with the business model elements as the common thread, is necessary to obtain a result on the viability of the proposed business model. The results from the quantitative and qualitative analysis are used as inputs to the discussion with insights gained from the literature review. The elements that were assessed from the literature review are:

- Value creation.
- Market influence and organisation.
- Internal capability, competence and assets.
- Personal relationships, investors, collaborators.
- Competitive strategy and innovation.

The discussion on each section is expanded for each element.

5.1. Value creation

5.1.1. Client sourcing

Value creation is directed at the customer or client as generally referred to in the construction industry. In the context of economic projects, value is created for a client when an enterprise offers a product or service to generate revenue (Pekuri, et al, 2013). The client is essential in order to have a need to for which to create an offering. The offering is how the business creates value for the client, and responds to the market's needs (Morris, et al. 2005). The alignment in the offering of a company will enable it to

source clients. The literature review indicates interventions instated by the client in the construction industry to implement provisions that align with preferential procurement that provides guidelines for the clients' role in creating an enabling environment for enterprise development (Laryea, 2019). Client role and sourcing is not only a South African issue: in the EU countries, SMEs' most pressing issues are indicated in Figure 2-3 of this report, which details the most pressing issue experienced by small enterprises as the finding of customers (ECSO, Safe Survey, 2017). The primary approach by the EU and South Africa in response to the issue of client sourcing is similar in the implementation of policy and legislation, such as the Small Business Act (2004). The EU includes additional interventions of which the second is a focus on promoting entrepreneurialism (ECSO, Safe Survey, 2017). The identification of the need to focus not only on external interventions, but also within the enterprises themselves has been identified as a contributing factor to promoting enterprise development.

This investigation assessed the approach from the business itself and the internal factors of the company that address the issue of customer sourcing. The quantitative and qualitative analysis was conducted to gain insight to the SMMEs approach to structuring their business to provide a sustainable solution as regards customer sourcing. A key finding in the analysis of the data provides understanding on how South African construction industries respond to client sourcing. The quantitative analysis indicates that only 8.3% of the enterprises on the data base indicated services offered as singularly applicable to the construction industry. The enterprises offer primary and secondary services that are not the same and often not limited to the construction industry. The assessment into primary and secondary services across the different development levels of businesses provided insight to the selection of secondary service offered. The companies that are further developed offered equipment and machine hire (plant hire) as a service offering beyond construction services. Plant hire has a broad client base including and extending beyond the construction industry to mining, power generation, and other industrial applications. The prominence of this option amongst business in higher levels of development is key understanding to the structuring of the business to source clients. The smaller companies that do not have sufficient capital and cash flow to purchase equipment prefer cleaning services as their secondary business. Cleaning

services reaches outside of the construction industry and has capacity for shared clients but a varied offering that creates additional value.

The further assessment of enterprises in the qualitative analysis indicated and verified that the majority of companies offer services beyond the construction industry. There is a thread that is demonstrated in the data, which is the possibility of a shared client with the opportunity of enhancing the offering across various services. There is benefit in connected stakeholders even though different services are offered. Company 4 indicated that a key opportunity to the development of the business was securing a long term cleaning and general maintenance project for a large industrial client. The exposure of the business enabled the involvement in the procurement process for minor building works, which then developed into larger construction projects over time. The structuring of the business to enable an array of services offered is key to the business model. Business models are inter-organizational (Wikström, et. al., 2010) and this is key in the South African SMME market. The enterprises can structure a business model that enables the operation of different services that can still interact with each other to promote enterprise development.

There is always a degree of improvisation: two companies interviewed have hospitality as alternate services offered. Company 6 accounts for 20% of funds sourced from the hospitality service that was enabled through funds generated from services offered within the construction industry. Company 8 indicated that plant hire occurred as a response to the company's internal requirements and thereafter developed to a separate company servicing external clients. This key is structuring the business to be in a position to harness opportunity and be flexible to respond to the occasion. Value creation and flexibility are linked as business model elements (Wikström, et. Al., 2010), which is consistent with the findings of this investigation. The analysis of project based business models from different companies located in Finland (Wikström, et. Al., 2010) found a low degree of flexibility among the businesses in the investigation. The opposite was found in this investigation of South African companies in the construction industry. The semi-structured interviews had a direct question into the breadth and depth of the services offered by the different companies to determine flexibility and value creation modes. The

results from the questions on value creation were analysed and processed in a structured way to extract information. Three parameters were assessed:

- Breadth:

  This refers to the range or scope of services that the enterprises offers, i.e. the degree of services offered as primary, secondary or more;

- Depth:

  This refers to the degree of development of the different services offered, i.e. if construction is offered, whether the service been developed to various aspects of construction like concrete works, building houses, and related works with a similar scope.

- Flexibility:

  This is assessed by the company's ability to respond and structure its operations to capitalize on an opportunity.

The concept of a broad of deep line in the service offering was introduced in the probe of the business model (Morris, et al. 2005). The concept was applied to this study with a series of questions to determine the extent of the service offering in relation to client sourcing. The questions on breadth, depth, and flexibility of services were assigned numerical value to display extent of each aspect and indicate effect on business model. A value from zero to five was allocated to the answers related to the three parameters, with zero being the lowest of the parameters and five the highest. The responses are summarised in 5-1.

Table 5-1: Analysis of approach to value creation

	Main funds source	Breadth	Depth	Flexibility	Client	No. of clients
Company 1	Primary	2	2	2	Private	2
Company 2	Primary	2	3	2	Private / Domestic	3
Company 3	Secondary	4	2	4	Private / Eskom	2
Company 4	Primary	3	4	4	Private / Gov.	4
Company 5	Primary and secondary	4	2	4	Private / Eskom	2
Company 6	Primary	4	2	4	Private / Eskom	3
Company 7	Primary	2	4	2	Private / Domestic	3
Company 8	Primary	3	4	4	Private / Eskom / Gov.	7
Average		3	2.875	3.25		3.25

The qualitative analysis of the companies from the interviews conducted provides key insights to the business model and its structuring in response to services offered, to the client, and as to how these are related to the three parameters tested. The high degree of flexibility is further demonstrated by the companies cumulating to a value above average of 3.25. The breadth and depth provide commentary on the business model and degree of development. Company 4, 6, 7, and 8 have developed beyond medium size and these companies have large depth ratings. Company 7 is the exception to this trend as a key contributor to this company's development is the introduction of an additional service in hospitality: the company is expanding outside of the construction and related industries. Company 4, 7, and 8 have a breadth below or average indicating a degree of services offered, but capped at a point. Flexibility between business models is central to creating efficient constellations, and it was noted that modularisation was implemented for multiple service offerings (Wikström, et. al., 2010). The consolidation of services reduces the complexity of the services offered and enables the business to operate in an efficient manner. The assessment of productivity in the operational factors addressed the response to this concept directly. Company 8 consolidated the steel fabrication and construction services to reduce support services. Company 7 creates nodes with large projects at the centre and smaller projects around the large project as a central physical locality to extract

the most value from a single point in the most efficient manner. These consolidated units function as modules and can function independently. Company 8 has expanded this approach to establish two companies – one for steel fabrication and construction and another for plant hire. This enables the effective management of the business.

The companies with great breadth, but low depth are highly flexible and responsive to opportunity. The key to this business model is to develop depth once the decided breadth has been achieved. The companies interviewed have an average experience of 4.33 years of operation of the business. The companies that demonstrated success with a more constricted breadth have a more extensive operating period of assessment to extract the success of the selection of the business model. The results extracted from this assessment indicate that a successful business model will settle on breadth at a point and then focus on depth. The development of depth is enhanced by continued or return work with the same or similar client. Companies 2, 4, 7, and 8 indicated that return work with clients was a procurement strategy and the approach to securing the return work was by providing the client assurance through high quality service.

5.1.2. Service delivery and quality

The assessment of the approach of businesses to sourcing clients has indicated the effect of quality on the value creation. The connection between a franchising business model as a means to ensure service delivery was positively demonstrated in South Africa (Wall, 2010). The study demonstrates the necessity to align business model with service offering to ensure delivery and value creation. The businesses that have a broad service offering do not create depth by developing each service and therefore the services become detached and singular. The benefit of the singular services is that they become specialised and even niche. The positive effect is seen on quality as they specialised service is executed to a high quality level. The services are detached and therefore require management for each one to ensure that there is control. The focus of the business owner is to have competent managers to maintain the level of control required. The companies that develop depth of services and consolidate services across single clients rely on a positive relationship with the client and high level of quality assurance from reputational

value. The employment of skilled employees and supervision is required to ensure quality is consistent. The second most prevalent issue facing SMEs in the European Union is the availability of skilled staff or experienced managers (ECSO, Safe Survey, 2017). The availability of skilled employees will be a key factor to the selection of business model. There is an interesting observation from the respondents on the level of expectation from the client. Most of the respondents indicated the need to ensure the happiness of the client, with no clear reference to the achievement of a standard. The core of the service delivery responses were related to the achievement of the client's happiness, and one company indicated that the response to the client's requirements was a key feature of ensuring the delivery of a project to acceptable quality levels. The core of the achievement of an acceptable level of quality, is a baseline to which it can be compared. It is for this reason that standards have been developed, to regulate quality control. The standards also protect the contractor to ensure the minimum standard is clear and defined. The absence of a standard will result in uncontrolled effort and expenditure to obtain approval on an undefined metric. The need for the companies to meet the client's expectation and keep them satisfied in order to potentially gain return work can result in an unfavourable industrial condition. The balance will be shifted to the client to push smaller contractors to exceed standards in order to obtain what is expected, but not completely necessary to gain excess value out of the service. This is a potentially damning situation for SMMEs in the South African construction industry looking to develop these small businesses. The emphasis needs to be placed on the attainment of standards as a minimum requirement in order to achieve a quality product, as opposed to making the client happy. This is not clear from the interviews held in this investigation, as all respondents were very clear to ensure that the client is happy, but made no mention to the need to adhere to the requirements defined in any standard. The focus on business aspects of the company to ensure client satisfaction should not diminish the technical requirements of executing construction works. The importance of client knowledge is also critical in this regard. The client cannot be reckless in setting expectations that are not aligned with industry standards. The Infrastructure Procurement and Delivery Management (IPDM) guideline (Laryea, 2019) is an important tool in the control of the client's approach to construction management and the role that the client plays in ensuring projects are successfully delivered.

5.2. Market influence and organisation

The results and analysis of the procurement strategies implemented by the companies present an insight which can be extracted from this investigation. There is a large majority (72%) of work for the private sector and most contractors (75%) focus their operations on the local region. There is a clear understanding from the entrepreneurs that in order to develop, government work is required. Government work is not consistent, especially in a single region and in order to pursue projects is it necessary to expand operations beyond the region and be mobile to work away from a single base. This mobility and development into the public market can only be achieved once the company is stable: Company 1 indicated a minimum of 6 months secured cash flow before entering the public sector market. Company 7 indicated that public sector projects are required in order to develop, and these will take them out of the region. Company 7 indicated the strategy to expand beyond the region is to have a mobile operation that focuses on civil construction (i.e. concrete works or earthworks that are equipment intensive) above building works. The civil contracts are economically and logistically viable as projects that can align with the operational factors within the business model. Company 8 indicated that it expanded beyond the region to projects across different provinces through the same strategy of focusing on civil projects to enable the mobility of the operations. Enterprise development is often linked with local community development and preferential procurement is targeted within a defined locality based on the client's requirements and position. The majority of enterprises (75%) operate within the region only, but as indicated by the more developed enterprises, mobility is required in order to develop further. Similarly to the analysis of breath and depth in value creation, where the expansion of breadth reaches a point where further development on this trajectory will be detrimental to the sustainability of the business, the lack of mobility also inhibits further development. The alternative is to expand laterally: Company 4 started with building, then civils, then purchasing equipment to enter alternative markets and investing in property. The diversification of services in the local area is required to generate work.

It is a take out from this investigation on the possibility of regional incubation to enable the establishment of a company up to a point until it is stable, and thereafter promote the development to other regions. This is a concept that needs further research, but is

discussed in this investigation as a finding from the results. This is a synergy between the external interventions, such as targeted incubation which was discussed in the introduction of this investigation; and the internal factors of a companies. The finding is that companies with business models that largely target private procurement can enable development, which is valid in regions that have private sector opportunities. If SMME development is focused on regions with private sector opportunity, it enables the development of the companies. Hubs with private opportunity can be created to promote enterprise development. The concept of regional private sector hubs and the link to incubation of SMMEs within this environment can be expanded in future studies.

The mark-up on rates also provides insight to the business model, 50% of the companies interviewed add an average mark-up of 10-15% in order to remain competitive. There is consensus from the businesses that the mark-up is lower on larger projects, but more revenue and cash flow security is obtained through services that appeal to these projects. The smaller companies have higher a mark-up on services offered, but these are often small works.

5.3. Internal capacity, competence, and assets

5.3.1. Business owner: Experience and entrepreneurial skills

The result from the quantitative analysis indicated that the largest number of business owners (23.80%) are within the age bracket between 36 and 40 years old, with the most common business owner at 38 years old. This represents 20 years of experience in the construction related industry and entrepreneurial role. The qualitative data aligns with a similar result, with an average of 37 years old across the companies interviewed. The companies that developed further have owners that are older than the average, i.e. Company 4 and 8 owners are 41 and 54 years old respectively. The age of the business owner is used to provide insight to the experience gained. The background to the business owners was assessed in the interviews. There was two clear categories of responses, those with technical background that is construction related and those with business related experience. Company 3 and 6 have information technology (IT) and marketing as the

basis of their careers, and the building block to the entrepreneurial skills. These companies are highlighted in the value creation business model element as having breadth in the business, and are opportunistic in their strategy. The rest of the entrepreneurs interviewed have technical backgrounds and developed from artisans, safety officers, or quality controllers on projects. It is noteworthy that no entrepreneur has a completed tertiary qualification, Company 1, and 3 are candidates completing a bachelors in technology (BTech).

5.3.2. Human capital

The analysis of the human capital make-up of the different companies makes use of the percentage of skilled employees. Company 3 and 6 have low percentages of skilled employees. These companies have a breadth of various service offerings. The converse is observed in the high percentage of skilled employees in Companies 2, 7, and 8 that are focused on depth and client continuity.

Table 5-2: Distribution of skill level across work force

	Skilled employees (%)	Semi-skilled (%)	Limited duration (%)	Support staff % of total (%)
Company 1	60%	0%	40%	0%
Company 2	100%	0%	0%	50%
Company 3	0%	0%	100%	0%
Company 4	33%	33%	33%	3%
Company 5	54%	46%	0%	15%
Company 6	25%	35%	40%	6%
Company 7	69%	31%	0%	12%
Company 8	65%	18%	88%	9%

Company 4 and 5 present transition cases. Company 4 has a lower skilled employee percentage. This a further developed enterprise that does have depth in its services. The company has not developed its services to expand to other regions. The company is

therefore extending its breadth to offer additional services in order to develop within one region, which is displayed by the relatively low skilled employees. The decision to structure the business model to enable lateral development affects the skill set of the work force. Company 5 also displays a transition: the business owner has a salon and indicated in the interview intentions on selling the salon to focus on the civil aspects of the business. This is an indication of a move to consolidate service offerings and developing depth in the business. The structuring of the business model is visible in the higher skilled employee percentage, which indicates that the business owner is aligning resources with the planned business model.

The support staff generally increases with the size of the company: the companies that have a broad service offering have a lower support staff requirement averaging at 5% of the total work force - this is a result of only one manager required at each service and none further down the line, as the line has not developed further. The companies that have depth in their service offering have higher percentage of support staff at an average of 15% of the total work force to address the need for additional supervisors along the line to ensure the operational controls are adequately managed.

5.3.3. Equipment and construction materials

The analysis of the results from the interviews indicated two categories of equipment resourcing of the enterprises to service either internal or external need. The trend concurs with insights observed that the companies with a breadth of service offering will have equipment to service the internal need only. The converse is valid for companies with a narrow breadth and developed depth. These companies have a network within the local construction industry which enables the external plant hire of equipment and machines.

The purchasing of construction materials is executed either through credit facilities with the suppliers or directly with cash. The more developed companies indicate that the procurement of materials is still executed through the suppliers' credit facility to enable the effective management of cash flow. Companies 4 and 7 indicate that relationships that are developed with the suppliers assist in securing better rates and discounts. Company 4 indicated that local supply is preferred in order to reduce the cost of logistics. Companies 3 and 5 indicated the ability to purchase upfront through cash payments. The option to

make cash payments is largely cash flow related: if the services offered can enable high availability of funds, then cash payment is preferred to reduce the cost of credit.

Company 6 developed a supply chain through an opportunity in procurement of construction materials. The company has a broad service offering, but the supply chain enables links within the service offerings. The applicability of supply chain management to a business model that is structured around a broad service offering can harness profitability. The investigation into supply chain management in the South African construction industry assesses the benefit of a network of firms working together to achieve objectives for construction projects and offer value to the client. (Emuze & Smallwood, 2013). This can be applicable to the broad service model as observed in this investigation. The network of firms can be either within the same business, as observed by Company 6 that has established several companies to create value, or as the previous study indicates, through other business owners. This lends itself to the preservation of locality of operation for a business, as collaborating within the region to enhance the supply chain is possible. Company 4 has already started to develop the supply chain by reaching into property development, which is in effect the development of different levels of the service offering. Company 4 is an example of transitioning to a sustainable broad service offering and connecting the service offering through supply chain management.

5.4. Personal relationships, investors, collaborators

The ownership of the business is the first point of establishing the business. The selection of ownership share portions has been analysed in this investigation. The quantitative assessment indicated an average of 23% proportioned back female ownership. The qualitative analysis indicated 62.5% (five of the eight companies interviewed) had 51% or higher ownership by black women. The ownership arrangements vary across the companies: the trend common to all companies is the need to have black women ownership in order to be competitive within the procurement of larger scale projects. Company 4 does not have black women in the ownership structure, which affects the growth decisions, and is potentially a reason why growth in depth of the civil services is not pursued, but rather expansion in breadth of service offering and value chain creation.

Company 3 indicated that the strategy implemented is to form partnerships or collaborations with large companies that do not have the B-BBEE requirements to engage in the procurement process. The large companies assist with capacity shortfalls and enable the execution of the works. Company 3 is noted for having an opportunist, broad service offering which enables targeted partnerships to deliver services without extensive internal capacity. The development of client relationships was noted by Companies 7, 5, and 4 as key to potentially securing additional work. Company 6 indicated that while relationships are important, work is secured through tenders and the focus on work output is prioritised.

5.5. Economic

5.5.1. Source of revenue

The source of revenue across the service offerings provides insight to the business model. The percentage distribution across the service offerings is detailed in Table 5.3. The column designated "other" includes the hospitality offerings: hair salon or hotel.

Table 5-3: Source of revenue as a percentage of contribution from service offerings

	Primary (%)	Secondary (%)	Other (%)
Company 1	83%	17%	
Company 2	90%	10%	
Company 3	8%	92%	
Company 4	92%	8%	
Company 5	50%	45%	5%
Company 6	61%	19%	20%
Company 7	100%	0	
Company 8	85%	15%	

Companies 1, 2, 4, 7 and 8 have clear majority income generation from the primary service. This is evidence of the development of depth of the one service to generate value which translates to income. Company 3 is the only company that does not generate the majority of funds from the primary service. It has been noted from the analysis and discussion of the various elements that Company 3 has structured the company in a manner to not rely on the primary service as a single source of income and similarly not invest resources into any single service offering. Companies 5 and 6 have a range of

businesses which is reflected in the broad array of percentage contribution from each service. Company 5 indicated the need to sell the salon listed under “other” in Table 5-3, which is substantiated by the low contribution. The transition to focus on the depth is indicated by the majority funding entering the enterprise from the primary service. The percentage contribution will grow higher than 50% with the focus on depth. The source of revenue will align with value creation if the business model has been correctly structured to ensure the success of the business. The change in business model is possible and will be reflected in the shift in revenue which should be managed within a controlled timeline.

5.5.2. Cash flow management

The productivity strategy that the various companies implement provides insight into the cash flow management. The companies are at different stages of development, which affects the funds available, thus affecting the cash flow. The trend developed is the conceptual approach to cash flow management that will be implemented across the enterprise to promote its development. Two trends were determined, namely the use of projects, or different companies, to manage cash flow. The companies with a focus on a single service offering made use of projects to manage the cash flow. The further the development of the company, the enhanced the ability to use the projects to plan, and even as Company 8 indicated, budget based on long term projects. The enterprises with broad services offerings made use of the various companies they own to manage cash flow. The transfer of funds between businesses enables the effective cash flow management in these companies.

5.6. Competitive strategy and innovation

The competitive strategy of the business is affected by the plans that the owner has to develop further. The insight into the development plans and strategy to remain and become more competitive is extracted from the results of the analysis in relation to the following areas:

5.6.1. Resource capacity development

Company 8 indicated that the key to the value creation is competent people that can operate the business when the owner is not available. Company 8 has developed extensively and is an example of the convergence of a business model to a desired outcome. Company 7 indicated that it is necessary to build up skilled employees to become managers responsible for remote projects. The trend to build up capacity through the empowerment of employees is a strategic decision to promote the development of the enterprise. Company 7 also indicated the alignment of the equipment fleet towards a civil service is key to the development of the company. The development of resources capacity is a key feature towards structuring a business model that positions the company favourable to obtain success.

5.6.2. Balance service offering breadth and depth

The breadth and depth of services offerings has been discussed in the business model elements which demonstrates the impact on the overall business model selection. The balance between the two factors provides directive to many operational factors of the business. In order to remain competitive, the company needs to assess its offerings and determine if the current services are adequate or require development on their depth, or if additional services need to be included within the enterprise. The balance is different for each business: Company 6 has a broad service offering and indicated plans to purchase another hotel as the business is profitable, which indicates a development of the same service offering which increases the depth. The company found a point at which an additional service was not required. Company 2 which is on a lower development level, indicated a desire to develop properties, which is the inclusion of an additional service offering which will increase the business breadth. This decision is based on a critical analysis of the current business model and how it needs to develop with all the elements and operational factors that enable the sustainability of the service offerings that will create value.

5.7. Conceptual business model

The conceptual business model is an assessment of the operational factors and business model elements in relation to this investigation to assess its viability to promote enterprise development. The presence of a business model was not explicitly clear from the business owners, but upon engagement on the operational factors affecting the development of the enterprise, it became clear that there was evidence of business model elements, validating that a business model was present. The investigation into the role of business models in Finnish construction companies (Pekuri, et al., 2013) concludes that there is a lack of understanding of the business model concept and similarly value creation analysis in their business. This is not the case in this investigation. The quantitative analysis extracted clear trends that were consolidated into four factors that provided insight to the business model. The qualitative analysis expanded further into the development of the enterprise and the operational factors that formulated the companies. The outcome is a series of business model elements that define South African construction related companies. These elements are presented as a conceptual business model:

- Value creation:

  The finding is the diversification of services in order to ensure an offering that creates value across a defined breadth and depth. The degree of breadth and depth of the offering is defined by the flexibility of the business and degree of sustainability of each service. Two key options:

  - Medium breadth, medium depth, medium flexibility:

    Characteristics:

    - Constellation of services, i.e. building and civils or civils and structural steelwork.
    - Consolidation of clients where multiple services are executed for a single client.
    - Develop each service offering over a long period of time to ensure each service can act as its own sustainable module of the business.
    - Flexibility within operations, but still within the same industry.

        - Efficient operation enabled by the sharing of resources.
        - Focus on quality.
        - Focus on supervision and skill level of employees to ensure quality and longevity of service.
    - Broad breadth, low depth, high flexibility:

      Characteristics:
        - Multiple services offered that are unrelated, i.e. civils, manufacturing, and hospitality.
        - One client for each service offered.
        - Opportunistic, i.e. the business owner is responsive to opportunities as they present themselves.
        - Highly flexible to enable opportunist approach.
        - Each service provides the ability to specialise which has benefits to the quality control.
        - Competent managers required to control each of the different services.

- Market influence and organisation:

  The assessment of procurement practices provides insight into possible approaches to structuring the business model as a result of the influence of market related elements. The options are simplified into two key choices:
    - Target: Private, SOE, and government projects:
        - Develop cash flow to execute large government projects that have inconsistent cash flow, but higher revenue and profit.
        - Develop operations to enable mobility beyond the region.
        - Execute projects that have a mix of small and large projects:
            - Large projects tendered at lower margin: 10-15%.
            - Small projects tendered at higher margins: 30-40%.
            - Consolidate small and large projects spatially to execute them efficiently.
        - Focus on internal operations not competitors.

- Target: Private, SOE, self-generating:
  - Invest in significant resources in the local region that can generate revenue back into the company, i.e. property requiring development or key equipment essential in the region.
  - Expand the breadth of the business value creation service offering.
  - Ensure a profit on each project or quote submitted at the mark-up that is still competitive (mostly 15-20%, can reach up to 30% if service is specialised).
  - Keep aware of competitors to ensure pricing is competitive and aligned with business model of other companies, which will affect the investment in significant resources that are relevant and required within the local market i.e. only purchase property that will yield profitability to the local environment.

- Internal capacity, competence and assets:

  The trend of two categories continues with the internal capacity of the companies, and can be summarised as follows:
  - Technical, skill, and equipment intensive:
    - Business owner has technical background.
    - High percentage of skilled employees.
    - A higher support staff percentage required (10%-15% of total work force).
    - Equipment is procured to service internal and external need and is available for plant hire. Large fleet can be developed.
    - Procurement of materials is related to cash flow management and is not seen as a potential revenue stream.

- Business agility, with lower skill requirement, and less equipment:
  - Business owner has business or related skills background.
  - Lower percentage of skilled employees.
  - The support staff required is at a low percentage averaging at 5% in comparison to total work force.
  - Equipment services internal need only.
  - Potential for supply chain management to connect various service offering and create value and profitability. The supply chain can be local and collaborate with business networks.

- Personal, relationships, investors, collaborators:

  The ownership of the firm is the key decision that is related to the business owner's personal and network capacity. The benefits of a favourable procurement position are unlocked if the company has a minimum of 51% black female ownership, which is an upfront decision that the business owners need to decide upon establishment of the enterprise. It is noted that in development of a 'depth in service' offering, it is preferred to have a black female shareholding of a minimum of 51% to be competitive on large scale. The elements affecting the business model once the initial ownership structure is established are as follows:
  - Internal focus:
    - Develop internal capacity to service own needs, and once stable extend reach to external stakeholders.
    - Develop client relationship.
  - External focus:
    - Collaborate based on capacity of other stakeholders.
    - Develop business market relationships.

- Economic:

  The trend indicated in the discussion of the results can be categorised as follows:

- Cash flow dependant:
  - Source of funds is largely from primary service offering: 70-100%.
  - Cash flow through project management.
- Income focused:
  - Source of funds can vary across various service offerings depending on the status of the market of each service at the particular time or extent of offering available.
  - Cash flow through different businesses and transferring funds between companies.

- Competitive strategy and innovation:

  The element enabling the sustainability of the business and future plans is a consolidation of the operational factors and elements to provide balance in the value creating potential. The balance between breadth and depth of the service offering and the resource capacity are key factors that are assessed holistically across all business model elements to make decisions that are particular for the enterprise.

The factors discussed in this investigation present conceptual outlines for a business model. The business model elements extracted from the analysis are not a definitive guideline to be implemented, but rather concepts to consider when compiling the business model of the company. The elements discussed in the conceptual business model are outlines of two options that are in contrast to each other from the data analysed. These are not exclusively the only options available. The purpose of discussing the contrasting approaches is to highlight the difference that the operational factors have on the structuring of the business model. The data analysed indicate companies that transitioned between the two options as development of the company occurred and this affected the alignment of the resources in order to facilitate the change in the business model. The ability to change that was observed in this study is a key factor to the success of the business. The South African SMMEs all displayed an ability to be flexible. The business

model needs to enable this flexibility and the proof the companies can change the model in response to requirements indicates this ability (Wikström, et al., 2010). The business model should facilitate this change in order to align the operational factors and business model elements to promote success and sustainability. The acute awareness of the business attributes in relation to these factors and elements will enable the harnessing of opportunity to place the business in a favourable position to make informed decisions that promote sustainability of the enterprise and facilitate development.

The investigation into the business models in project business (Wikström, et. Al., 2010) concludes with three categories of business models:

- Business models for single projects.
- Business models for project networks.
- Business models for business networks.

The conceptual business model proposed in this investigation assesses two contrasting cases, and noted transitions between the two. The two cases are conceptual and highlight factors that typically describe each element of the business model with trends in the two contrasting approaches. The importance of breadth and depth of the service offering was noted as a key factor to the business model, noting that singular and multiple service offerings largely affected operational factors and business model elements. Parallels can be drawn between a narrow breadth, developed depth business model discussed in this investigation and business models for single projects (Wikström, et. Al., 2010), similarly for a business model with a developed breadth, low depth and business models for business networks. The business models for project networks is comparable to the companies noted in this investigation that are transitioning between the two scenarios. The two studies have similarity in the findings which converge on the viability of the business model approach within project centred businesses which is the case in the South African construction industry.

5.8. Impact of business model

The discussions with the business owners regarding the impact of targeted awareness and possible intervention on the business model yielded positive

response. Most companies indicated that it will beneficial to their companies if they applied themselves to the benefits of critically assessing their business model in order to determine shortcomings, and more importantly areas of improvement that can promote development. Company 8 indicated that had there been more attention to the business model, there would have been more focus on particular aspects of the business and less time wasted on services that are not yielding positive return. Company 4 indicated that business model planning and cash flow management need to be considered holistically to enable the business to develop. The impact of the business model can affect the operation of the business and thereby enable its development. The outcome that the positive influence of business model awareness can enable success and sustainability of the company was extracted from the interviews with all business owners. The availability of business model information will assist future business owners as a starting point when entering the market. The awareness of the business model will enable entrepreneurs to critically assess operational factors in relation to business model elements to structure the business to harness opportunity and maximise value creation.

6. SUMMARY, CONLCUSION, AND RECOMMENDATIONS

6.1. Introduction

The need for the investigation into the viability of business models to promote enterprise development within the South African construction industry was established upon assessment of the SMME development trends that have not indicated significant improvement. The need for an intervention to stimulate enterprise development that works in synergy with existing interventions was identified. The current interventions were assessed as follows:

- Legislation.
- Mentoring and incubation.
- Social franchising.
- Management contracting.
- Procurement and client focused approach.

It was noted that these interventions investigated enterprise development from an approach of actions from the "outside-in" and hence implemented upon SMMEs. There is a merit in assessing interventions that can be applied from within the SMMEs to promote enterprise development. The review of literature indicates the range of business models that could be utilised as a tool to implement the internal intervention. This investigation assesses the viability of these interventions as feasible options.

6.2. Overview of the literature review

The SMME background is assessed within the South African construction industry. The challenges faced are detailed extensively (Dapaah and Musonda, 2014) including but not limited to: lack of business and financial skills, financial constraints, late payment by clients, high turnover of skilled workers, short term work, complicated contract administration, and intense competition. The European construction industry, in particular the SME market is assessed to determine if there are any shared issues. The most pressing problems noted were finding customers, availability of skilled employees,

competition, regulation, cost of production, and access to finance (ECSO, Safe Survey, 2017). The different scenarios have similarities in the issues experienced.

The SME market is highly active in the EU, contributing 14.30% of the total market share (ECSO mandate, 2014). SMMEs in South Africa contribute 18.9% overall (Stats SA Construction Industry Report, 2017), however the percentage of business turnover has decreased from 40% in 2015 to 26% in 2019 indicating a decline in SMME contribution and a negative development trend. The assessment of the European market can assist in providing an overview of interventions implemented that stimulated their SMEs development and the possibility of effectiveness within the South African construction industry. The European interventions include, but are not limited to: Policy provisions, and promoting entrepreneurship. The concept of entrepreneurialism was expanded further to assess applicability as a business approach to be implemented to SMMEs.

The business approach is demonstrated by the promotion of entrepreneurial leadership. There is a positive relationship between entrepreneurial leadership and sustainable growth of small contractors (Bikitsha, et al, 2014). The concept 'entrepreneurialism' exists within South African construction companies and with the improvement of management techniques, positive results can be achieved (Snyman and Smallwood, 2016). The further assessment of improved management techniques extended to the study on the impact of diversification on South African construction companies (Oyewobi et al, 2013). The investigation found that diversification can have a positive impact on companies. Diversification was a means in which a company could systematically plan its operations. The systematic planning of operations is a major attribute of a business model, which prompted the need to assess the impact business models can have on companies.

A business model can be described as the way a company operationalizes its strategy to actual business activities or initiatives (Casadesus-Masanell, 2010). The business model is concerned with the framework of the company that enables value creation. The framework is translated into operational factors that implement the business model in a planned and structured manner. The research into business models within the South African context is limited. There is research conducted into business models within the Finnish construction industry that is assessed in relation to the South African context. The

assessment of the European SME market validated the applicability of European studies. The role, impact, and elements of business models that were tested in European studies within the construction industry in relation to seminal works within the fields was assessed in order to provide a guideline for the investigation into the viability of business models within the South African construction sector.

The assessment of business models that have been investigated, relevant either directly to the South African construction industry or to the European construction industry, in order to determine key factors of the business that were examined in these studies that need to be considered in the current investigation.

The franchising business model was evaluated based on different studies in order to gain insight to the factors that were tested in each investigation. The viability of franchising in the UK construction industry (Watson & Kirby, 2018) determined that franchising was not favourable due to the human capital requirements of the industry not favouring the franchising business model. The social franchising model was implemented in the Eastern Cape in South Africa in a case study of the provision of water services (Wall et al., 2010). The model was successful in ensuring service delivery of the requirements at an acceptable quality standard and in a more professional manner. The study into the provision of health services (Montagu, 2002) found that the franchising model promoted local ownership and this enabled the improvement of availability and access of the services. The improved quality of the services provided was also a key finding of the study. The health services awareness and use was a concern amongst the local community, and the franchising model was successful in enabling the companies to connect with the community and ensure that the work was valued and utilised. The outcome from the review of literature related to the franchising model extracted factors to assess in the investigation into business models in the South African construction industry.

The supply chain model assesses value creation for the client in harnessing the different levels of the service offering. The investigation into a general contracting firm in the South African construction industry (Emuze & Smallwood, 2013) found that horizontal supply chain across a network of firms enabled the interconnection of activities and sharing of resources. The management of construction materials was concluded as a key

benefit to the implementation of the supply chain model. The further assessment into studies related to supply chain introduced the concept of industrial organisation as the assessment of the performance of a company in relation to its position within the market and how it is organised (London & Kenly, 2001). The study assesses the supply chain in the construction industry as a broad system that has common themes that connect them, namely distribution, production, strategic procurement management, and industrial organisation economics. The case study of the UK construction industry (Morledge et al., 2009) picks up on this trend, further indicating that construction does not have the culture of a single industry, but rather contains many different service offerings. A supply network is relevant to the construction industry as opposed to the singular view of a supply chain. The literature review of supply chain provides further insight to factors that need to be investigated in the current study.

The extraction of the different factors of a business that were examined in previous studies provided the insight for the factors that needed to be assessed in the research. These factors formed the basis of questions that would be used to determine the composition of the conceptual business model.

6.3. Summary of results

The mix of both quantitative and qualitative research methods is beneficial in the built environment (Amaratunga, et al. 2002). The investigation into the viability of business models to promote enterprise development in the South African construction industry was conducted using both research methods. The quantitative assessment makes use of a data set from a client company (Company X) from information captured as a part of its procurement process. The trends in the data are analysed to provide a primary level of assessment towards the research objective. Companies from the data set are then selected for the further analysis through a qualitative method. The studies into business models within the European context made use of semi-structured interviews to gather qualitative data: the same approach was used in this investigation. The research parameters investigated were determined from the literature review. The Framework Method was employed to assess the parameters in the form of a matrix, with the indices made up of

business model elements from a synthesis of business model investigations and operational factors based on literature of different business models that have been implemented in the construction industry.

The investigation is located within the Nkangala region in the coal rich Mpumalanga Province, South Africa. There is a hub of economic activity in the region due to the coal deposits that include mining and power generation from the State Owned Enterprise (SOE): Eskom. The limitations of the study are noted due to the overall poor performance of the construction industry in South African. The active economic conditions in this region are not indicative of the rest of the country, which limits the applicability of the study. The investigation into the viability of business models is conducted in this region to extract data from businesses that are operational and trends can be determined.
The results from the quantitative analysis of the data set displayed trends that were assessed in four key outcomes:

- Primary and secondary services:

  The analysis of the data set indicated only 8% of the companies offered services singularly for civils and projects. The vast majority of companies offer a mix of services as either primary or secondary options. Machinery and Equipment hire was a prevalent alternate service offering among companies that are further developed and had capital for equipment. Cleaning services was a more prominent option across companies that are less developed with less financial capacity and limited number of skilled employees.
- Work awarded:

  The large majority of companies that were awarded work are already developed with a high rating, and with the secondary service offering of equipment hire.
- Ownership:

  The large majority of the companies in the data set have 100% black ownership, of this majority, on average 20% are 100% black women owned, and 3% are 51% black women owned.

- Experience:

  The experience is determined by the age of the business owner as a proxy: a key finding is the average age of 38 years old, suggesting twenty years of experience in the industry, either technical or business related.

The study is developed by building on the results from the quantitative analysis to gain further insight to the business models of specific companies through semi-structured interviews. These interviews form the qualitative analysis. Eight interviews were conducted with companies at varying development levels. The matrix developed from the review of the literature was used as a framework to structure the analysis of the results from the interviews. The operational factors were first analysed and related to the business model elements in a discussion in synergy with previous studies. The results from the qualitative analysis in relation to the operations factors is summarised as follows:

- Procurement:

  The majority (72%) of work is secured from private clients, with only 6% of revenue attributed to the public sector. There is a general apprehension with work for the government largely due to payment delays and the impact on cash flow. The majority of companies apply a 10%-15% mark-up on costs to tender submission.

- Service delivery:

  The satisfaction of the client is a key determinant for the companies to ensure service delivery. Client satisfaction is determined either by high quality of work, positive relationships, continuity of work, or offering services beyond the construction project deliverables, such as consultation (design) or manufacturing.

- Quality, access, use:

  The key factors to ensuring the desired quality requirements are determined largely (50%) by and the company's ability to respond to the client's requirements, the entrepreneur's experience, the skill level of the company's employees, and developing a niche market through a specialised service offering.

- Human capital requirement:

  The work force and support staff are determined as separate outputs from the data analysis. The work force has an overall average of 51% skilled employees across

all the companies interviewed. The companies that place high value in quality deliverables have higher skilled employee percentages. Companies with higher levels of flexibility exhibited a lower skilled employee ratio. The trend displayed in the appointment of support staff is proportional to the turnover of the company – a higher turnover requires additional support staff. The companies that offer external plant hire require additional support staff.

- Equipment:

  The equipment that enables the company to deliver on its service offering is established for either an internal or external need. Companies that own a smaller equipment fleet only service the projects that they execute. Companies that have larger fleets first service their own equipment needs on projects; thereafter the equipment is hired out as an additional revenue stream.

- Construction materials:

  The companies interviewed either procured materials on credit or cash only. The larger companies made preference to procurement on credit, but developed relationships with suppliers to secure better rates.

- Ownership:

  The analysis of ownership in the qualitative assessment indicates a higher percentage of portioned black female ownership (62.5%) in relation to the quantitative analysis (23%). The higher percentage within the companies interviewed indicated the significance of ownership amongst companies that have active work. The proportion of black female ownership enables an improved preferential procurement rating increasing opportunity to obtain work.

- Production:

  The companies interviewed displayed two strategies to promote efficient operation of the business. The first approach is through the effective management of projects to enable resource sharing. The second is through registering different companies to effectively manage cash flow and the finances between the various companies.

- Primary and secondary services:

  The diversification of service offerings was raised in the quantitative analysis and is further expanded through the interviews. The majority of companies (63%)

operate in different industries. The offering beyond construction is a trend in the companies interviewed.

The relation of the operational factors to the business model elements is summarised as follows:

- Value Creation:
  The analysis of the companies in different approaches to value creation shows that this is driven by the clients targeted to obtain work. The service offering is structured to generate profit and sustainability from the offering. The trend between companies interviewed is the difference between the depth and breadth of offering, and how the structuring between the two indices affect the business model. The companies interviewed all displayed a high level of flexibility which enables the transition between the two business models. The concept of depth and breadth of service offering is prominent in the analysis of the business model elements, highlighting the impact on the operation of the business. The assurance of quality and service delivery is a means of client satisfaction which is essential to continuity of work.
- Market influence and organisation:
  The focus on public sector procurement affects the locality of work, with the majority (75%) of contractors working within the region. There is an understanding that public work is required to promote development of the business, and this will require mobility to obtain larger projects.
- Internal capacity, competence, and assets:
  The quantitative analysis indicated an average of 20 years' experience displayed amongst business owners. The majority of the business owners, generally with businesses that have increased depth as opposed to breadth have a technical background. There were only two of the eight companies interviewed that had exclusively business related experience with little to no construction experience. The companies with employees that have a higher skill level trend to have a greater degree of depth. The companies that developed the supply chain have a higher degree of breadth in the service offering.

- Personal relationships, investors, collaborators:

  The ownership affects the initiating conditions of the companies' establishment. The selection of partners enabling the improved procurement opportunity is related to the personal relationships of the entrepreneur.

- Economic:

  The source of revenue is assessed among the primary and secondary service offerings. The companies that have depth of service offerings rely largely on the primary service. The companies that offer a broad range of service offerings have a higher spread, potentially even more revenue from the secondary service. The flexibility between different revenue streams enables effective cash flow management.

- Competitive strategy and innovation:

  There are two key considerations when structuring the business model to promote development: The resource capacity development and balancing of service offering breadth and depth. The connection between these aspects provides directive to the business plan towards future development.

6.4. Conclusions of the investigation

The assessment of the operational factors and business model elements were consolidated to a form a conceptual business model from the results from the matrix framework. The conceptual business model is presented in relation to the business model elements with two cases on alternate approaches of each element observed from the companies interviewed. It was discussed that there were companies demonstrating a transition between the two alternatives that resulted in business models straddling the two alternatives. This transition can be consolidated into a third intermediate business model. The models are conceptual and the outlining operational factors influencing each element are presented as a guideline to engaging cognisance to different options available when structuring the business model, and the operational factors that need to be aligned with that decision. The need for flexibility is highlighted by the transition case. The three different conceptual business models are comparable to the three models assessed in the analysis of project business (Wikström, et. Al., 2010) for single projects, project

networks, and business networks. The impact of business model implementation is discussed within the interview process and concluded as beneficial to the companies' operation.

The business model is concluded as beneficial to promoting operational control within a business. The enhanced operational control provides a framework to critically assess the plan for the enterprise and the operational factors required to influence business model elements that enable the enterprise to be in a position to maximise on value creation for the client and thereby securing work. The procurement of work enables the business to continue and promotes sustainability. The harnessing of the business model to place the enterprise in a position to respond to opportunity in a manner that maximises return will promote development. It is therefore concluded that having a business model is beneficial in promoting enterprise development.

6.5. Findings and recommendations emerging from the study

The presentation of a conceptual model emanating from the study is of significance to SMMEs in making decisions when entering or further advancing progress in the South African construction industry. The conceptual model applicability can guide entrepreneurs and provide an outline to the structuring of the business that will enable development. The findings and recommendations are presented for a new company and an existing company looking to expand operations. The intention is to present a relevant guideline based on findings from the research to enable enterprises at two different stages of development to structure the organisation.

New company recommendations:

The findings from the business model that are recommended based on the investigation are structured in relation to key elements of the business model and indicated as follows:

- Value creation:
  The service offering of the company should start out with a broad breadth. The company should not focus on one particular offering or specialist service to start out. The risk is reduced if there are more options in the service offering, which enables more options to source clients. The result is lower depth in each service offering, as a particular offering will only be developed once there is a clear demand and client need. The result of the broader service offering is high level flexibility of the company to respond to client's requirements. In this way the company has optimised its ability to add value at the initial stages of business operation.

- Market influence and organisation:
  The broad service offering enables the company to cater to a larger market, this aligns with a focus on the private sector, as there are more client options. The approach to start with the private market also considers the effective management of risk and cash flow. It has been noted that companies have encountered the issue of late payments (Dapaah and Musonda, 2014), and the distribution of clients into smaller manageable incomes will assist in managing this factor. Private clients should be targeted, followed by state owned enterprises (SOE) like Eskom. Once the enterprise is financially stable and built up adequate capital then larger government projects in the public market can be targeted.
- Internal capacity, competency, and assets:
  It is important to have an agile business at the start. Agility in relation to technical and financial aspects. If the business has loans or specialist and expensive equipment at start up, it limits the ability to create value for different markets. There should be focus on projects with a lower skill requirement, and less equipment.
- Personal relationships, investors, collaborators:
  It has been noted in the conceptual model from the research that businesses with an internal focus on servicing their own needs and establishing the organisation requirements are enabled to develop. Once the internal organisation is established, then collaborations with external stakeholders can be pursued. The relationship with clients must also be prioritised to position the enterprise in good relation with opportunity of follow-on work.
- Economic:
  The conceptual model has two main economic drivers: cash flow and income. The company should place focus on the cash flow at the initial stages. This is the management of income from the clients and expenditure on resources required to do the work, i.e. employees, suppliers, hire of equipment. There should be strategies in place to ensure the management of the income and expenditure enables continuity of work.
- Competitive strategy and innovation:
  The consolidation of the aspects detailed in the previous areas will define the strategy. The new company should select a large range of service offerings and align the resources with each offering. The company should have at least two offerings that do not have to be related and do not require high level skills or equipment, i.e. cleaning services and general building. The company should focus on creating value for clients in these service offerings to grow each of these offerings.

Existing company recommendations:

- Value creation:
  Companies will have a larger range of service offerings at the start of their development process. As the enterprise develops it will start to add enhanced value in some of the service offerings more than others. This will result in the refinement of the extent of the offering. The breadth of the offering will reduce. The enhanced offering can then be further expanded to add depth. The resultant depth will create value for a smaller range of clients but have a more extensive services for a single offering. For example; if a company offered cleaning and

building, but noted that it can expand on the building offering to include more services, i.e. the design of the building, or the supply of a particular material, or the inclusion of a landscaping. The enhanced services add depth to what was previously only one offering. The expansion in depth does limit flexibility, as more focus is made on less offerings.

- Market influence and organisation:
  It does align with expectation that the enterprise will develop with its market. In this manner the enterprise will retain clients within the same market. It is for this reason that the same private and SOE clients will remain as the business develops. There is opportunity in perusing self-generating opportunities. If the company has added depth of an offering to an extent that it can identify a need, there is opportunity in seeking opportunities fulfil the need with its own offering. To build on the previous example; the business can execute a full building offering, and notes there is a residential development required in an area, the company can execute the entire development to service this need.
- Internal capacity, competency, and assets:
  The resources must align with the offering. The expansion of depth in the offering will require more skill and technical ability. As the depth increases so too does the complexity of each offering and the internal capacity to continue to add value will need to increase through higher competency levels of the resources. The equipment requirement will also increase with the depth offering. The business will need a strategy to ensure availability of equipment, whether it procures or secures long-term agreements with external companies.
- Personal relationships, investors, collaborators:
  It is expected that the company has already established internal organisation, and shift focus towards external stakeholders. The external focus should guide the business into collaborations that complement the service offering to add value to the market. The development of relationships with market related stakeholders will expand on the capacity of the business and enable higher levels of opportunity. The collaboration with external stakeholders also enables the sharing of risk, i.e. between contractors, suppliers, consultants.
- Economic:
  The focus as the enterprise develops is on income. The move from cash flow to income is made provided that there is adequate capacity to ensure continuity of work. The focus then moved to expansion, in order to expand, there is a need for more income. The business model must be structure to enable the souring of new or additional income. This will enable the enterprise to develop and expand.
- Competitive strategy and innovation:
  The expansion in the depth of the service offering will result in the company becoming more specialist. It will offer services that are related and cater to a smaller but related market of clients. The company will start to develop of reputation for a particular offering and the development of capacity will enable the technical expertise to ensure this is delivered. The focus does shift the external relationships to build on that capacity to enable further development.

Organisational management encompasses the models and strategies towards achieving a common goal (Bocken, et al. 2014). The common goal is enterprise development in the construction industry within South Africa. The conceptual model with recommendations

for enterprises at different stages of their development will assist the business to structure the company's operational factors. The recommendations of applicability of these findings to new and existing companies is a direct application for companies to use. The application of these elements to formulate the business model will assist the enterprise to achieve organisational management.

6.6. Recommendations for further research

The investigation concludes that business models are a viable option to promote enterprise development. A conceptual business model is presented to display the impact of the business model to verify viability. The business model is conceptual and based on results and analysis from the data of this study only. The limitation of the study is constrained by the region in which the investigation was conducted. A study that extends beyond the region is recommended to gather additional data to determine the applicability of the conclusion to a broader data range that can be verified across the entire South African construction industry.

The conceptual business model presented only assesses characteristics of enterprises at two opposing options of each business model element, with the transition in between. The further assessment into business model frameworks that are applicable to different environments and operational factors is recommended as a further investigation.

The discussion of the depth and breadth of service offerings is assessed in relation to the development plans of the enterprise and transition between the two. There appears to be a point where the transition was determined in order to promote sustained development. The point in transition between depth and breadth of the service offering of the enterprise is recommended to be further analysed in order to provide guidance to business owners when considering development plans.

The accessibility of business models to enterprises is recommended for further investigation. The majority of business owners indicated that they had no knowledge of what a business model was, the elements of the business model, or the impact such an understanding could potentially have on their company. The accessibility to this information will be beneficial to these and other companies. An investigation into the most effective means of communicating the business model influence is recommended.

The regional implementation of enterprise development hubs was discussed in this investigation. This is the establishment of incubation hubs within particular areas that

have high levels of private industrial activity. The concept of harnessing on enabling environments as an initiator for SMMEs in relation to economic activity for multiple companies from various localities is an area for investigation. This is a concept that can be further expanded in future studies.

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APPENDIX A: ETHICAL CONSIDERATIONS

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE **PROTOCOL NUMBER:** CEECC-0707520Y-2019

PROJECT TITLE Viability of Business Models to Promote Enterprise Development within the South African Construction Sector

INVESTIGATOR Mr Michael Pappas **STUDENT NUMBER**: 0707520Y

SCHOOL/DEPARTMENT OF INVESTIGATOR CIVIL AND ENVIRONMENTAL ENGINEERING

DATE CONSIDERED 09 December 2019

DECISION OF THE COMMITTEE Approved unconditionally

EXPIRY DATE Date of submission of the project report

ISSUE DATE OF CERTIFICATE 09 December 2019 **CHAIRPERSON** Prof John Ndiritu

cc: Supervisor : Prof Anne Fitchett

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date** 10 / 12 / 2019

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

PARTICIPANT INFORMATION SHEET

Research Title:

Viability of Business Models to Promote Enterprise Development within the South African Construction Sector

Research by:

Michael Pappas (towards MSc Eng)

Description:

My name is Michael Pappas and I am a Masters student in Civil Engineering at Wits University in Johannesburg. As part of my studies I have to undertake a research project. I am investigating viability of business models to promote enterprise development within the South African construction sector. The aim of this research project look into businesses and assess for the different models can possibly promote enterprise development.

Time and Involvement:

As part of this project I would like to invite you to take part in an interview. This activity will involve a semi-structured discussion with guidelines from questions based on previous studies that have been conducted. The interview will take around 45 minutes. With your permission, I would also like to record the interview using a digital device. There may be a need for follow-up interview, please can you make yourself available if or when the need arises. The research activity will take place between November 2019 and February 2020.

Risks and Benefits:

You will not receive any direct benefits from participating in this study, and there are no disadvantages or penalties for not participating.

Rights:

You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation, in my final research report. The reference will be Company A,B,C,etc. If you experience any distress or discomfort, we will stop the interview or resume another time. The questions will not be relate to personal information or opinion, but rather directed towards gaining insight for market research.

Contact Information:

If you have any questions afterwards about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you upon request. If you have any queries, concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (non-medical), telephone + 27(0)11 717 1408, email Shaun.Schoeman@wits.ac.za

If you agree to take part in the research activity, please complete the consent form. A copy of the form will be for your records. Thank you for your participation.

Research Interview Questions

The interview is intended to be a semi-structured discussion – 45 minutes in duration in order to gain insight from companies on business models implemented. The engagement is intended to align options of business models in order to determine viability of the business model to promote the development of the enterprise. The questions are a guideline to the discussion to ensure possible research objectives are achieved.
List of Questions:

Part 1: Background

1. Company Background
   Timeline of company development
   Revenue streams
   Resource information
   History of projects
   Collaborators
   Future plans
2. Business Model
   What do you know about business models?
   Do you have a business model?
   Will the implementation of a business model be beneficial to your company?

Part 2: Business Model attributes

1. How do you create value?
   a. Offering: products / services / mix
   b. Standardized / some custom / high customisation
   c. Broad line / medium breadth
   d. Deep line / narrow breadth
   e. Access to product / product itself / product bundled with other companies products
   f. Internal manufacturing / service delivery
   g. Direct distribution / indirect distribution
2. Who do you create value for?
   a. Type of organisation: b-to-b / b-to-c / both
   b. Local / regional / national
   c. Where is consumer in value chain – upstream / downstream
   d. Broad or general market / niche market
   e. Transactional / relational
3. What is your source of competence?
   a. Production / operation systems
   b. Selling / marketing
   c. Information management / mining / packaging
   d. Technology / intellectual / creative
   e. Supply chain management
   f. Networking / resource leverage
4. How do you competitively position your company?

a. Image of operational excellence / consistency / dependency / speed
b. Product or service quality / selection / features / availability
c. Innovation / leadership
d. Low cost / efficiency
e. Intimate customer relationship / experience

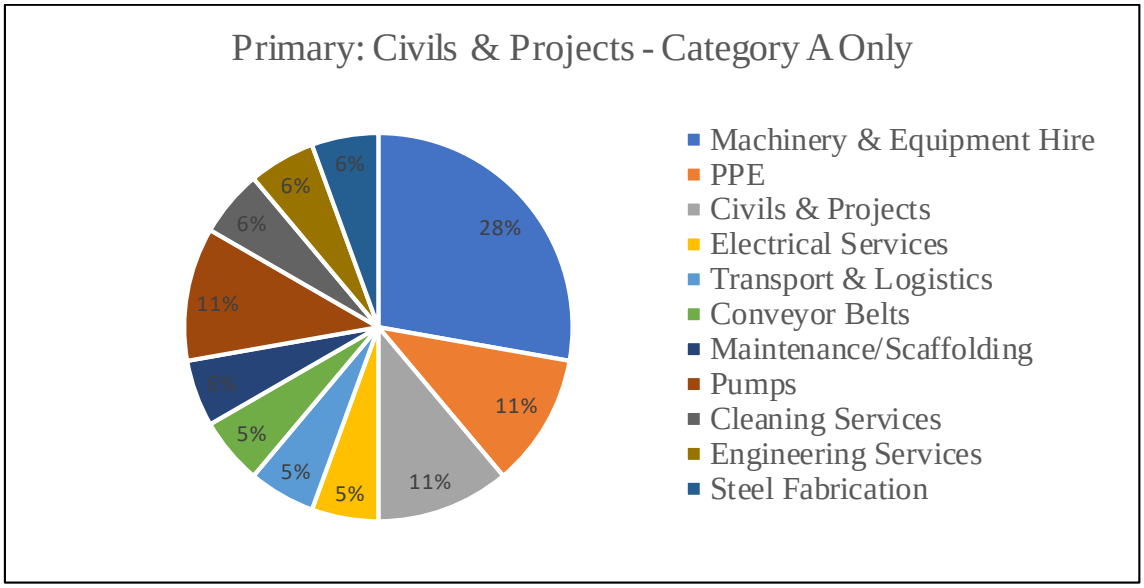
5. How do you make money?
a. Pricing and revenue sources: fixed / mixed / flexible
b. Operating leverage: high / medium / low
c. Volumes: high / medium / low
d. Margins: high / medium / low

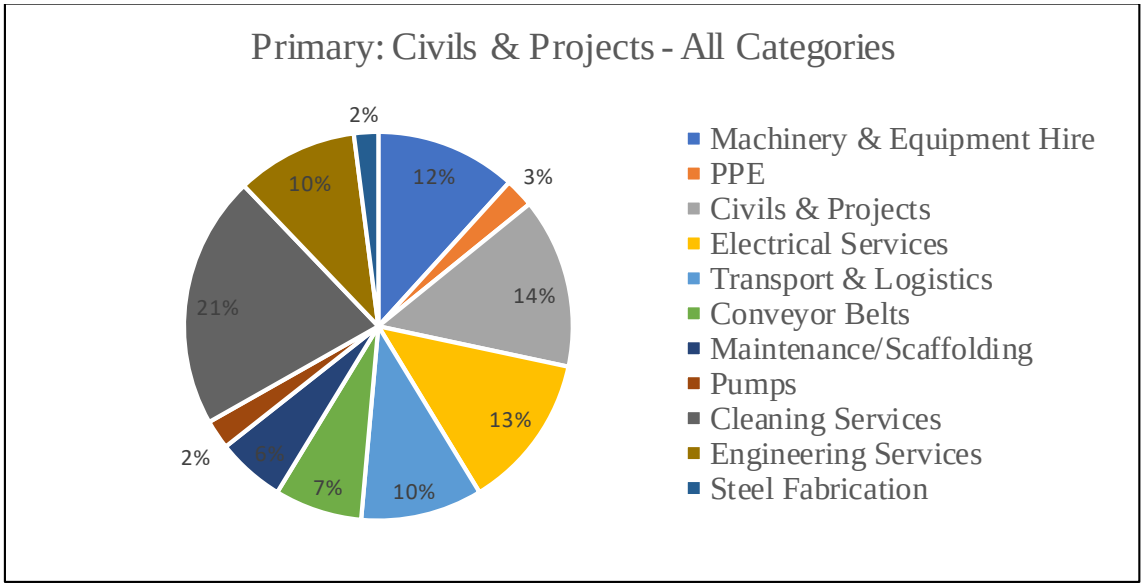
6. What is your time, scope, and size ambitions?
a. Subsistence model
b. Income model
c. Growth model
d. Speculative model

APPENDIX B: QUANTITATIVE DATA RESULTS

	Primary: Civils		Primary: Civils and projects		Primary: Projects	
	No.	Profile	No.	Profile	No.	Profile
Total (incl. blanks)	357	80.7%	421	81.00%	64	82.43%
Category A: Business ready	34	90.6%	36	89.31%	2	66.86%
Category B: Not business ready	92	92.0%	112	93.23%	20	99.13%
Category C: Generic	8	85.3%	12	88.76%	4	95.64%
Category D: Didn't attend interview	8	74.9%	12	72.09%	4	66.57%
Blank	215	74.4%	249	74.35%	34	73.84%
				0.00%		
with Vendor Number	17	87.21%	18	87.92%	1	100.00%
Of which: Category A	16	86.41%	17	87.21%	1	100.00%
Of which: (Blank)	1	100.00%	1	100.00%	0	0.00%
				0.00%		
Of the 16 Category A's - Secondary services				0.00%		
Machinery and equipment hire	5	86.74%	5	86.74%		
PPE	2	58.14%	2	58.14%		
Civils and projects	1	100.00%	2	100.00%	1	33.72%
Electrical services	1	100.00%	1	100.00%		
Transport and logistics	1	100.00%	1	100.00%		
Conveyor belts	1	100.00%	1	100.00%		
Maintenance/ scaffolding	1	82.56%	1	82.56%		
Pumps	1	50.00%	2	75.00%	1	100.00%
Cleaning services	1	100.00%	1	100.00%		
Engineering services	1	100.00%	1	100.00%		
Of the 1 company that is blank - Secondary services				0.00%		
Steel fabrication	1	100.00%	1	100.00%		
For All – Category A-D and blanks						
Machinery and equipment hire			29	83.80%		
PPE			6	74.80%		
Civils and projects			35	74.43%		
Electrical services			32	84.34%		
Transport and logistics			25	87.21%		
Conveyor belts			18	74.80%		
Maintenance/ scaffolding			14	85.71%		
Pumps			6	91.66%		
Cleaning services			52	84.45%		
Engineering services			25	88.60%		
Steel fabrication			5	93.26%		
Of the 17: Ownership						
51% Black ownership	1	100.00%	1	100.00%	0	0.00%
100% Black ownership	16	86.41%	17	87.21%	2	66.86%
Of which				0.00%		
0 % Black women ownership	11	84.78%	12	86.05%	0	0.00%

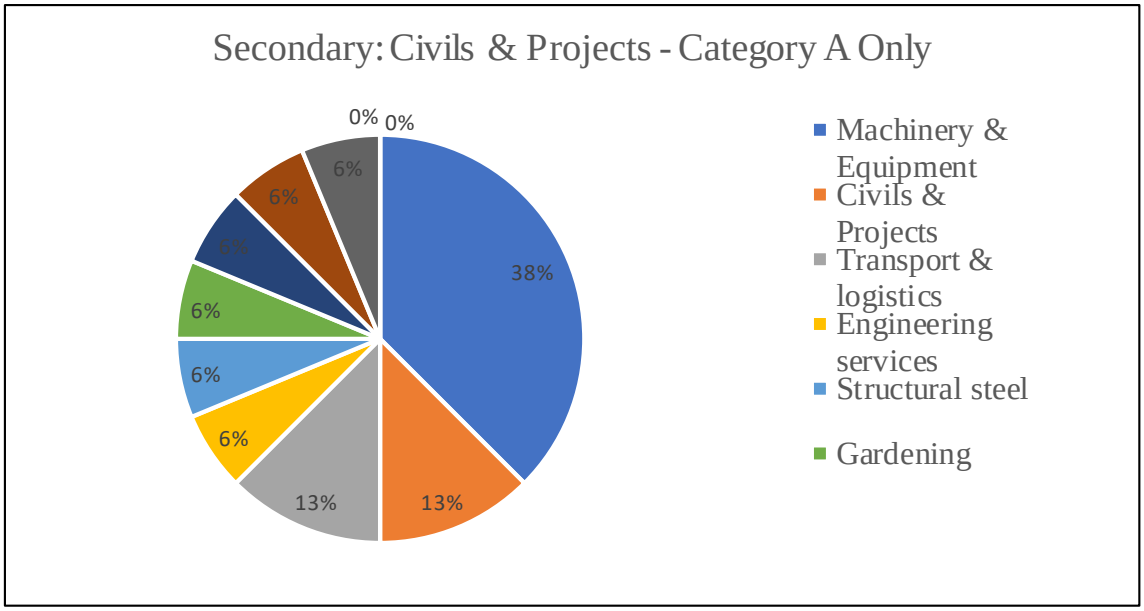
51% Black women ownership	2	100.00%	2	100.00%	0	0.00%
100% Black women ownership	4	87.50%	4	87.50%	0	0.00%
				0.00%		
Average age of owners category A	40.86	90.63%	40.27	89.31%	32	66.86%
Average age of owners category B	38.9	91.95%	38.68	93.23%	37.72	99.13%
Average age of owners category C	44.83	85.33%	44.67	88.76%	44.33	95.64%
Average age of owners category D	39	74.86%	35.9	72.09%	31.25	66.57%
Average age of owners blank	38.6	74.43%	38.24	74.35%	36.13	73.84%

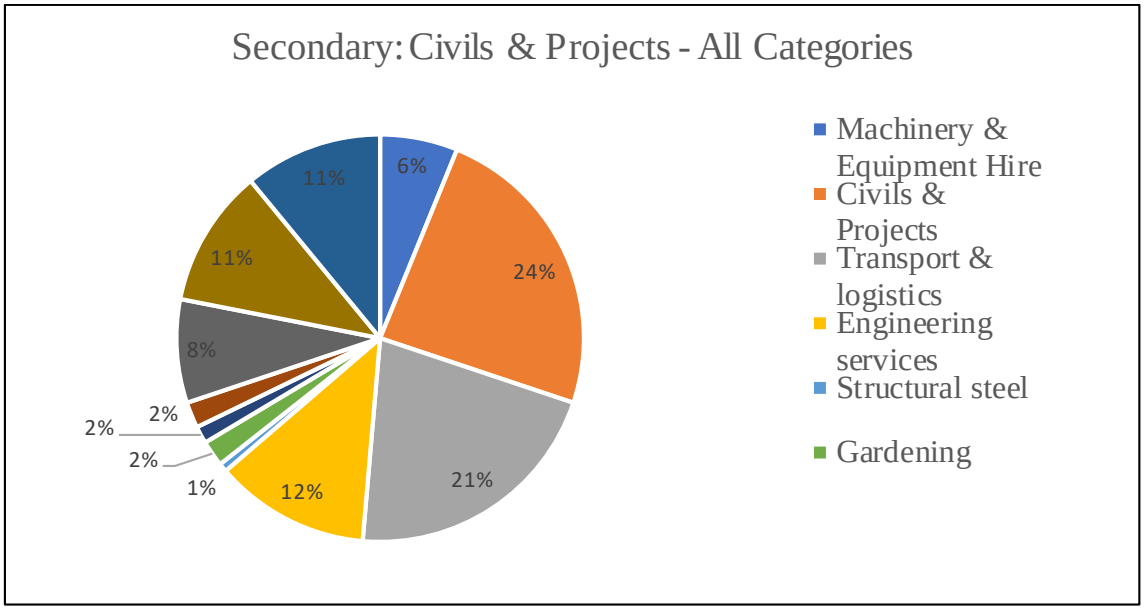




	Secondary: Civils		Secondary: Civils and projects		Secondary: Projects	
	No.	Profile	No.	Profile	No.	Profile
Total (incl. blanks)	184	78.10%	238	78.71%	54	80.74%
Category A: Business Ready	20	94.94%	25	95.95%	5	100.00%
Category B: Not Business Ready	34	90.56%	48	91.21%	14	92.78%
Category C: Generic	4	70.35%	5	76.28%	1	100.00%
Category D: Didn't attend interview	7	92.86%	7	92.86%	0	0.00%
Blank	119	71.12%	153	71.41%	34	72.40%
with Vendor Numbers	13	97.31%	16	97.83%	3	100.00%
Of which: Category A	11	98.42%	14	98.76%	3	100.00%
Of which: Category B	1	100.00%	1	100.00%	0	0.00%
Of which: (Blank)	1	100.00%	1	82.56%	0	0.00%
Of the 16 Vendor Numbers (incl. Blank) - Primary Services						
Machinery and equipment	5	96.51%	6	97.09%	1	100.00%
Civils and projects	1	100.00%	2	100.00%	1	100.00%
Transport and logistics	2	100.00%	2	100.00%		
Engineering services	1	100.00%	1	100.00%		
Structural steel	1	100.00%	1	100.00%		
Gardening			1	100.00%	1	100.00%
Environmental services	1	82.56%	1	82.56%		
Fencing	1	100.00%	1	100.00%		
Mining services	1	100.00%	1	100.00%		
Cleaning Services			0	0.00%		
Electrical			0	0.00%		
For All - Category A-D and blanks						
Machinery and equipment hire			9	88.63%		
Civils and projects			35	73.65%		
Transport and logistics			31	83.76%		
Engineering services			18	80.30%		
Structural steel			1	100.00%		
Gardening			3	100.00%		
Environmental services			2	91.28%		
Fencing			3	44.19%		
Mining services			12	73.55%		
Cleaning Services			16	70.50%		
Electrical			16	84.30%		
Of the 16: Ownership						

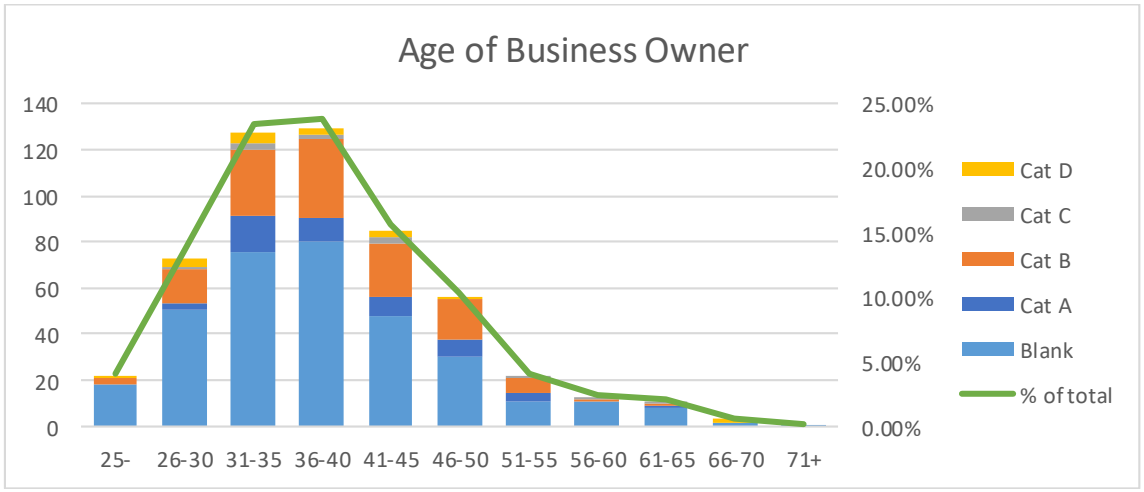
50% Black ownership	1	82.56%	1	82.56%	0	0.00%
100% Black ownership	12	98.55%	15	98.84%	3	100.00%
Of which						
0 % Black women ownership	8	97.83%	10	98.26%	2	100.00%
51% Black women ownership	5	96.51%	5	96.51%	0	0.00%
100% Black women ownership	0	0.00%	1	100.00%	1	100.00%
Average age of owners Category A	41.53	94.94%	41.38	95.95%	40.8	100.00%
Average age of owners Category A with Vendor numbers:	43.60	98.42%	41.86	97.67%	40	100.00%
Average age of owners category B	37.74	90.56%	37.4	91.21%	36.45	92.78%
Average age of owners category C	40.5	70.35%	40.67	76.28%	41	100.00%
Average age of owners category D	39.43	92.86%	39.43	92.86%	0	0.00%
Average age of owners blank	38.43	71.12%	37.87	71.41%	36.13	72.40%





Age of business owners:

Average	Bracket	No.	% of total	Category A	Category B	Category C	Category D	Blank
23.73	25-	22	4.06%	0	3	0	1	18
27.89	26-30	73	13.47%	2	15	1	4	51
32.91	31-35	127	23.43%	15	29	3	4	76
38.02	36-40	129	23.80%	10	35	1	3	80
42.75	41-45	85	15.68%	8	23	3	3	48
47.3	46-50	56	10.33%	8	17	0	1	30
52.73	51-55	22	4.06%	4	6	1	0	11
58	56-60	13	2.40%	0	1	1	0	11
63	61-65	11	2.03%	1	1	1	0	8
67	66-70	3	0.55%	0	0	0	1	2
71	71+	1	0.18%	0	0	0	0	1
47.66	Total	542	1.00%	48	130	11	17	336



APPENDIX C: QUALITATIVE DATA RESULTS

	Start Date of Company	Date of Company Registration	Operation of Company (Years)	CIDB Grading	Interviewee Position	Age of Interviewee	Previous Experience	2019 Turnover (R million)	Asset Register (R million)	Duration of interview (min)	Date of Interview
Company 1	2018	2017	2	1	Managing Director	41	Civil construction	2	0	90	14/01/2020
Company 2	2017	2017	3	3	Director	32	Weld tester, domestic building	8	0.1	74	22/01/2020
Company 3	2016	2015	4	3	Managing Director	24	IT: information technology	1.5	0	70	27/01/2020
Company 4	2010	2010	10	6	CEO	37	Safety officer at steel smelter	48	31	85	07/02/2020
Company 5	2014	2018	6	not reg.	Managing Director	38	Safety officer at engineering companies	9.264	1.1	65	10/03/2020
Company 6	2017	2017	3	6	Managing Director	41	Entrepreneur, marketing	19.7	12.7	108	12/03/2020
Company 7	1997	2014	23	8	Director	29	Construction	64.3	60	65	13/03/2020
Company 8	1997	2004	23	8	Managing Member	54	Steel structures and engineering	134	130	82	24/03/2020

Service delivery:

	Completed projects in 2019	Current active projects	Current active alternate income	Continuity of work	Number of clients
Company 1	2	2	1	No break	2
Company 2	15	3	3	No break	3
Company 3	7	2	5	Supply	2
Company 4	10	7	3	No break	4
Company 5	11	3	3	No break	2
Company 6	12	6	1	External hire	3
Company 7	15	6	0	No break	3
Company 8	20	10	1	External hire	7

Human capital requirement:

	Skilled employees		Semi-skilled		Limited duration work force		Support staff		External services
	No.	%	No.	%	No.	%	No.	%	No.
Company 1	6	60%	0	0%	4	40%	0	0%	
Company 2	12	100%	0	0%	0	0%	6	50%	
Company 3	0	0%	0	0%	4	100%	0	0%	1
Company 4	20	33%	20	33%	20	33%	2	3%	2
Company 5	14	54%	12	46%	0	0%	4	15%	
Company 6	12	25%	17	35%	19	40%	3	6%	
Company 7	61	69%	28	31%	0	0%	11	12%	
Company 8	74	65%	20	18%	100	88%	20	9%	

Quality:

	Key area of value-add			
	Entrepreneurs experience	Skill level of employees	Specialising / niche market	Responsive to client requirements
Company 1	1			
Company 2	1			
Company 3		1		
Company 4				1
Company 5		1		
Company 6			1	
Company 7		1		
Company 8		1		

Equipment:

	Items of large plant (TLB & bigger)	Items of small plant	Scaffolding (tons)
Company 1	0	2	0
Company 2	0	2	5
Company 3	0	0	0
Company 4	6	0	50
Company 5	3		0
Company 6	6	0	0
Company 7	60	0	14
Company 8	30	15	0

Procurement of construction materials:

	Credit facility / supply agreements	In-house financing
Company 1	1	0
Company 2	1	0
Company 3	1	0
Company 4	1	0
Company 5	1	0
Company 6	1	1
Company 7	1	0
Company 8	1	0

Ownership:

		51% Black female		
	100% Black male	49 % Black male	49 % White female	100% Black female
Company 1		1		
Company 2	1			
Company 3	1			
Company 4	1			
Company 5				1
Company 6		1		
Company 7			1	
Company 8		1		

Primary and secondary services:

	Construction primary	Alternate	Alternate	In construction industry	In different industry	No. of registered businesses
Company 1	Building	Supply			1	1
Company 2	Building	Engineering			1	1
Company 3	Building	Supply	Consulting		1	2
Company 4	Building & civils	Maintenance & cleaning	Property development		1	1
Company 5	Building	Electrical	Maintenance & cleaning	Salon	1	3
Company 6	Mining	Manufacturing	Hospitality		1	3
Company 7	Building & civils			1		1
Company 8	Building & civils	Steel fabrication			1	2

Value creation:

	Main funds source (primary / secondary)	Range/scope broad / narrow	Depth broad / narrow	Flexibility	Client	Number of clients
Company 1	Primary	2	2	2	Private	2
Company 2	Primary	2	3	2	Private / domestic	3
Company 3	Secondary	4	2	4	Private / Eskom	2
Company 4	Primary	3	4	4	Private / Gov.	4
Company 5	Primary & secondary	4	2	4	Private / Eskom	2
Company 6	Primary	4	2	4	Private / Eskom	3
Company 7	Primary	2	4	2	Private / domestic	3
Company 8	Primary	3	4	4	Private / Eskom / Gov.	7

Market influence and organisation:

	Locality of work	Selection of projects
Company 1	Province	Trust
Company 2	Regional	Return work
Company 3	Regional	Quote & JV
Company 4	Regional	Tender
Company 5	Regional	Tender
Company 6	Regional	Tender
Company 7	Regional	Tender & word of mouth
Company 8	National	Tender

Internal capability:

	Entrepreneur background
Company 1	Civil engineering S4
Company 2	Quality control
Company 3	Website design
Company 4	Safety officer & general construction
Company 5	Safety officer & business academics
Company 6	Entrepreneur
Company 7	Construction
Company 8	Artisan

Competitive strategy and innovation:

	Tender approach			Client		
	Submit / month	Achieve / month	% Success rate	Private (mining)	SOE (Eskom)	Public (Gov.)
Company 1				100%	0%	0%
Company 2	20	1.5	8%	100%	0%	0%
Company 3				8%	92%	0%
Company 4	24	8	33%	58%	0	42%
Company 5	20			55%	45%	0%
Company 6	6			81%	19%	0%
Company 7	30	1.25	4%	100%	0%	0%
Company 8	5	0.05	1%	70%	21%	9%

Economic:

	Source of funds		
	Primary	Secondary	Other
Company 1	83%	17%	
Company 2	90%	10%	
Company 3	8%	92%	
Company 4	92%	8%	
Company 5	50%	45%	5%
Company 6	61%	19%	20%
Company 7	100%	0	
Company 8	85%	15%	

General % Mark-up						2019 Turnover (R million)
	10-15	15-20	20-25	25-30	35-40	
Company 1	1					2
Company 2				1		8
Company 3					1	1.5
Company 4		1				48
Company 5	1					9.264
Company 6					1	19.7
Company 7	1					64.3
Company 8	1					134

Personal relationships, investors, collaborators:

	JV	Join with large companies	Financing	Solo
Company 1	0.5			0.5
Company 2	1			
Company 3		1		
Company 4				1
Company 5				1
Company 6	0.5			0.5
Company 7				1
Company 8				1

Company 1

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation		Continuity of projects with client (offering quality service and on time)				Credit facility at 'some' suppliers	Single company Previously owned a company (2012-2017) that was not successful	Small team, that can be layed off if necessary.	Start with supply to contractors of PPE in order to break into market. Then do Civils works as Primary
	Market influence, and organisation	Operates across fairly broad area, doesn't want to remain in one place.		Quality system from large companies implemented (where previously worked)						
	Internal capability, competence, and assets	Owner does tenders		Small team with high level competence	4 Skilled employees that form basis of company	Hire small plant.				
	Personal, relationships, investors, collaborators	Avoid projects involving politics - i.e. does not tender for government work	Maintain good relationship with client. Noted that it is not only the works, but the entire engagement experience over duration of project.	Construction experience enabling execution of works to be of high standard				51% black female owner: sister - not actively involved in company		
	Economic	Works for private clients to ensure cash flow is not affected Sub-contracted on government project before for a friend at a high mark-up (48%) Mark-up Reduced from 25% to 10%							Worked at large companies before - implements operational controls (daily costing) to ensure profitability	Minor PPE supply contracts to ensure continuous cash flow
	Competitive strategy and innovation	Understands larger projects are with government - but needs at least 6 months cash flow before entering that market	Offer quality product to ensure continuity of work. Background in Civils enables insight to industry						Goal is to grow 3 times larger	

Company 2

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation	Execute residential renovations to ensure cash flow and continuity of work. Insists on 50% upfront payment. Works for large private clients for larger profit margin, but delayed payment period.		Experience in quality control systems: Previously worked as QC for weld tests on pipelines. Good quality enables return work with large private clients.					Manages the programme of works and communicates extensively with operational team to keep busy.	Welding / Engineering Services (Gates, car ports, burglar bars) No machines - outsources heavy work
	Market influence, and organisation	Operates in region only to lever off network								
	Internal capability, competence, and assets		Executes 'turn-key' projects (i.e. design and construct) for simple projects for clients to make it easier for them and more inclined to request additional work		18 Employees in total: 8 skilled workers and 4 supervisors. Increase support staff with the expansion of the business = 2 Project Managers, 1 Tenderer, 1 HR and 2 Safety					
	Personal, relationships, investors, collaborators		Brother owns business doing aluminium frame fabrication and installation. Partner on projects. Continuity of work with same clients (corporate & residential)		Open and social leadership to place company in positive position. Good relationship with clients to ensure continuous work		Borrow money from brother. Uncle in trucking that assists with transport of materials to site. Credit facility at suppliers.	100% owned		
	Economic	Mark-up 30%	Every order that is done has a profit.			Small plant: concrete mixer and 3 x generators Owns own scaffolding		All money is kept within the company.		
	Competitive strategy and innovation				Plans to approach FET colleges to offer learnerships for the development of skills and the benefit of the company			Tender extensively (20 a month) Property developer: Buy land and build houses - focus on residential		

Company 3

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation		More focused on management than construction execution					Forms agreements with large non-BBBEE companies		Outsources delivery to 3rd party to reduce risk, no insurance costs
	Market influence, and organisation	Regional - focus on local clients								
	Internal capability, competence, and assets	Offers professional service in response to clients procurement requirements	Business, not technical background			No equipment - JV with large companies				Manage 7 People from another company to do refurbishment and supply
	Personal, relationships, investors, collaborators		Take all work to build a brand to develop a relationship with clients JV with large company to procure projects	Partners with experienced companies to ensure quality of end product	No full-time employees. Calls up when necessary. Also uses labour brokers. Partnership with large company to procure projects, and portion of works is allocated to company			100% owned	No overheads - manages others resources	
	Economic	Take smaller supply jobs to ensure cash flow whilst building the brand Mark-up 35%-45%	Will take on low profit yielding projects to develop the brand and gain experience				Procure as and when necessary. Cash flow available from secondary services			Supply is good for cash flow, but not the focus of the company Secondary business is a financial means to sustain the main business
	Competitive strategy and innovation		Work towards developing a consulting / management contractor firm		Management model			Planning to go back and study within 2 years to study risk management. Wants to develop a 'Big Brand' and generational wealth		Supply can grow to support the business

Company 4

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation	Balance projects between private and public: Private has high value but is inconsistent, Public work has a relatively lower value over longer periods of time, but provides stability	Offer good service to clients to ensure return work	High level quality finish on building works	Skilled work force (brick layers, plumbers, electricians) for building & maintenance work Work with limited duration employees to share skills	Fleet for building / civils work. One specialised plant (dredging truck) for similar client but different needs No small plant - as maintenance is too high (rent these items)		Single company		Civils, Building maintenance, cleaning, property development
	Market influence, and organisation	Regional - Project has been conducted in another municipal region - only if logistically feasible	Aware of competitors, create value from operational management		Source temporary labour locally for each project		Local supply - which favours lower logistics cost			
	Internal capability, competence, and assets	Target 6 tender submissions a week. Generally obtaining 2 per week by contracted QS			Total 42 permanent employees (20 skilled and 2 full time support services) 1 contracted QS Outsource HR to external company	Fleet: 2x TLB 2 x 10m3 Tipper 2 x 20ton excavator and 50ton of scaffolding	Procure from suppliers direct not hardware stores / agents	Background in health and safety within steel industry	When not busy with projects, then go to personal developments	Doesn't want to invest down the supply chain. If materials specification changes then supply facility is a waste of money
	Personal, relationships, investors, collaborators	Proposed maintenance projects to client that was approved - already on site	Continuous works from same client	Responsive to clients requirements to ensure satisfaction of end-user		Largest investment: R5.6 million dredging truck purchased with financial assistance from supplier	Long term relationship with suppliers to secure discounts on materials	100% owner	Friend with same company that share resources as per need	Long term facilities maintenance contract for single client secured through relationship
	Economic	Mark-up 15-20%				Major item of plant generates 8% of total turn-over		No partners / shareholders to be paid Owns R10 million worth of property (R31 million asset register)		Property development is basis of funding model. Access bond on existing property enables cash flow
	Competitive strategy and innovation			Remain on site with current clients and present proposals to create additional work		Own more plant to reduce costs		Develop own property. Plan to construct large retail development		Expand within civil construction capacity - plans to be next large contractor

Company 5

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation		Start with domestic work and link electrical to civil to offer value added service of signing COCs - develop into 2 companies	Skilled employees and experienced managers ensure quality	Employ experienced managers which ensure work is up to standard employ skilled people - even if they don't have matric to ensure quality is good			Owning the different companies 100% enables to sharing of resources to offer the service when needed	Take on small orders to keep continuity of the civil team Electrical team has continuity through long term maintenance projects	4 active income streams: 2 separate companies: 1 civil and 1 electrical Domestic work at guest house (gardening & cleaning) hair salon
	Market influence, and organisation	Only quote for mines, Eskom, and private client - no government work due to "bad reputation" Regional based work. Active industries to find opportunity								Send brother to another region to establish a branch executing only domestic work (garden service)
	Internal capability, competence, and assets	Do own quotes / tenders with the input from supervisors on site to ensure feasibility - submit 20 a month			Total 30 employees: 15 civil - building skills (incl. 8 skilled, 2 supervisors), 8 electrical (incl. 3 electricians). Support: 1 admin, 1 marketing (spouse), 1 project controller	Electrical company has crane trucks and 2 LDVs which were purchased when 3 year contract was awarded Civil company has no equipment - hire in		Background in health and safety in engineering sector. Tertiary education in office management and BTech in safety management	Civil company has consolidated projects - the sharing of resources is enabled	
	Personal, relationships, investors, collaborators		Face-to-face contact with clients to establish relationship Tender to get work					100% owner		
	Economic	Mark-up 10-15%	Long term maintenance contracts with Eskom to ensure longevity of electrical company				Purchase materials mostly cash Credit facility at local hardware only for quick purchase requirements			Intention to sell the hair salon - as it is time consuming and yields small returns
	Competitive strategy and innovation				Plan to expand work force to 100 people					Purchase properties (near schools) to rent out to generate income - first one planned for end 2020

Company 6

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation	Start with civils for Eskom, noted gap to supply item that was single source - started manufacturing item Second company in mining is an expansion to larger market		Focused on specialising on one aspect of civils and started manufacturing that item and fulfil a niche role in the market		Very flexible - Purchase crusher, execute works - perform well and then sell equipment to client to do themselves	Manufacturing opportunity was born out of supply requirements of civil projects			3 companies - unrelated: 1 Construction & Manufacturing 2 Mining 3 Hospitality Reinvest back into these companies
	Market influence, and organisation	Currently regional as there is opportunity Saw gap in market and that resulted in the evolution of first civils company becoming a manufacturing company. Similarly, mining was also a gap that was noted	Private Client for now, but plan on expanding to public projects						Each business functions independently - different resources. Each business must be efficient within itself	Moved away from civils as it focused on tendering, and tendering is "like the Lotto" - high risk, hence to move to manufacturing and mining
	Internal capability, competence, and assets	Do tenders internally and submit on average 6 a month		Installed software to manage process of manufacturing	Total employees: 48 32 mining company (13 semi-skilled & 19 casuals) 16 manufacturing company (12 in factory 4 installers)	Fleet of "yellow plant" (loaders, dozers) to the value of R4 million and 2 10m3 tippers hired out Inventory of R4.2 million for manufacturing company		Owner companies since 2006 - experienced entrepreneur. First company: Civils & Manufacturing is 100% owned - get partner for second company in increase capacity		
	Personal, relationships, investors, collaborators	Focus on marketing, but understands work is procured from tenders - ensure price is right, quality is good, and positive turn-around time						51% owner of Mining company 100% Owner Civils & Manufacturing		
	Economic	Mark-up 35%	Build up capacity through manufacturing and installing to enable the start of the mining company			Supplier of equipment assisted with the financing of the machines for manufacturing. Hire premise (factory) where manufacturing occurs	Credit capacity at material suppliers for manufacturing - imported products - cant import own container	Use current assists as surety to fund the purchase of additional assets between companies Invest in additional asset in hospitality (hotel)		
	Competitive strategy and innovation		Target large government tenders (i.e. construction of hospitals) Set-up satellite branch in KZN to expand				Export product into rest of Africa (potential client in Zambia) beyond current Eskom (single client)	When civils company moved to a manufacturing focus. Set-up one employee (Civil Engineer) to start-up own business		Purchase an additional hotel - profitable business

Company 7

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation		Very experienced and long history.	Focus on quality and safety (especially for mining clients)	Experienced employees that are highly skilled: 9 employees that are section leaders and can run a project			Long history - family company started Umvuzu Projects in 1997 - with 27% black ownership. In 2014 went into partnership with investor		Only focus on one company - not to complicate the operation
	Market influence, and organisation	Started with domestic construction and moved to sub-contract for larger clients. Developed and then worked directly for large clients. Now only private clients (mostly mines) in region							Consolidate projects and tenders to create constellations of large projects as nodes and smaller (mostly building) projects to create additional value while at one location	
	Internal capability, competence, and assets	Tender 30 submissions a month: 5 large and 25 smaller projects		High level quality based on internal capacity of employees developed over the years	Total 89 employees	Large fleet: 60 items in total (12 ADTs, 5 Excavators, 12 LDVs)				
	Personal, relationships, investors, collaborators	Secure private work 'By word of mouth' doing large civil works for farmers / developers		Private work secured by reputation of good quality			Long term relationships with suppliers, but most are paid in cash	51% black female owner: shareholder, but minimal operational involvement. 49% white female owner		
	Economic	Mark-up 7-12% on larger projects and 20-40% on smaller projects	Low overheads makes them more competitive in tenders			Purchase the equipment cash - which reduces repayments and results in low overheads.				Additional company for old resources that are mostly 'written off'
	Competitive strategy and innovation		Shift from a building focused service provider to a civils (equipment focused) to enable mobility to do more projects that are national not regional		Build up skilled employees to become managers to be able to manage projects remotely	Establish a fleet focused on civils projects			Move towards large projects that are more efficient	

Company 8

Business Model Determination Matrix		Operational Factor								
		Procurement	Service Delivery	Quality Access Use	Human Capital Requirement	Equipment	Construction Materials	Ownership	Production (efficient use of resources, wastage)	Primary Secondary Services
Business Model Elements	Value Creation		Maintenance contracts to keep continuity for either small building works or engineering (i.e. steel repairs to conveyors), and large projects that are civil related (i.e. concrete works)		Empowers people to create value. They need to be there when owner is not - they are key to development of company.	Secure long term projects, came to the realisation the plant could have been paid off over duration - went into plant purchasing and then naturally plant hire			Steel fabrication and construction consolidated to share support services	Started in Steel Fabrication, but didn't have funds to purchase machines to remain competitive, started civil construction arm of the company to develop further
	Market influence, and organisation	Does not focus on competitors. Only conscious of Big 5 companies								
	Internal capability, competence, and assets	Full time tender - submit 5 large tenders a month. Many smaller quotes. Success rate for large projects is only 1/10	Labour only supply contracts of skills, i.e. boiler maker	Skilled employees and line management	20 employees at office (finance, operation, line managers, 3 x procurement, HR, payroll) Mostly contract workers. Total 200 employees with 5 skilled supervisors	30 Items of plant: Dozer, loader, grader, 3 x excavators, drop-side and tipper trucks. Plant Hire company separate				2 workshops for steel fabrication. Also owns commercial property, leasing out to two tenants (small factories)
	Personal, relationships, investors, collaborators	Secure government work through sub-contracting only. Attends tender site inspections to network with other contractors Approached by large 'white' firms to partner on projects						51% black female owner: wife - small role played in marketing of the company		
	Economic	Mark-up 10-15% on larger projects and 30-35% on smaller projects	Plant hire company supports the construction company to reduce cost of hiring machinery			20 units fully paid off, the remaining are still being financed. Some through the bank, but most through supplier. Supplier finance is preferred	Purchase materials on credit to facilitate cash flow		Big projects enable sustainability through budget planning	Maintains two companies, not consolidate into one to maintain Level 1 B-BBEE Status
	Competitive strategy and innovation	Tendering for large infrastructure development project in Zambia	The way forward is to work smart and professionally					Owner is close to pension age, and has set-up three children to enter into the business: 1 payroll, 1 artisan (potential CEO), 1 marketing	Plant to grow 2, but maximum 3 notches larger	Plan to move into property development