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THE CHALLENGES OF SMALL, MEDIUM AND MICRO ENTERPRISES IN ENGINEERING: SOUTH AFRICA

Xolani Gladman MTAMBO[1]
Sam LUBBE[2]
Kenneth N. OHEI[3]*

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Abstract

The small, medium and micro enterprise sector is an economic engine for many countries. Realizing the potential of small, medium, and micro enterprises, the government of the Republic of South Africa has put a burden on itself to create 90% of jobs through small, medium, and micro enterprises through the implementation of the 2030 National Development Plan. Despite these initiatives, the failure rate of these enterprises in South Africa is still high and continues to increase. This research aims to investigate the challenges of small, medium and micro enterprises that operate in the formal economy, with the focus narrowed down to small, medium and micro enterprises that provide engineering services to engineering-intensive firms in the public and private sectors in South Africa. The target is a sample of member companies of Consulting Engineers South Africa, as well as random engineering service firms that render similar services. In general, engineering services' small, medium and micro enterprises mainly depend on owners' limited capital, which limits growth initiatives. Moreover, the absence of adequate resources, business facilities and specialised equipment puts small, medium and micro enterprises at a competitive disadvantage and, therefore, causes stagnation. Government's initiatives are not well publicised and, therefore, small, medium and micro enterprises are not well informed to capitalise on such initiatives.

Keywords: Engineering; failure; Small, medium and micro enterprises; stagnation; strategy; SWOT analysis.

1. Introduction

Chimucheka and Mandipaka (2015) assert that the small, medium and micro enterprise (SMME) sector is an economic engine for countries. In 2015, Statistics South Africa

[1] *Graduate School of Business Leadership, South Africa, e-mail: xmntambo016@gmail.com*
[2] *School of Management and Administration, STADIO Higher Education, South Africa, e-mail: Sam.lubbe@gmail.com*
[3] *Management Sciences, Mangosuthu University of Technology, South Africa, e-mail: Kennethohei@gmail.com*
** Corresponding author*

reported that the country had 667 433 formal and 1 497 821 informal SMMEs, equalling 2 251 821 (Bureau for Economic Research, 2016).

This study seeks to investigate the challenges faced by SMMEs that provide engineering services. The aim is to establish and understand the causes of failure and growth limiting or hindering factors. Only SMMEs in the formal economy that are registered with the Companies and Intellectual Property Commission (CIPC) will be considered. SMMEs from the Consulting Engineers South Africa database will be used for data sampling.

This study defines the problem, an introduction to the research methodology and literature review as well as the data findings, answering of the research questions and the conclusion.

1.1. Problem statement

Considering the widely acknowledged importance of SMMEs in the developmental state of economies (Chimucheka & Mandipaka, 2015), the government of the Republic of South Africa (RSA) established the Department of Small Business Development (DSBD) (Department of Small Business Development, 2014). The purpose of this department is to coordinate, facilitate and promote the development of entrepreneurship and small businesses through enabling legislation and policies to support the growth and sustainability of SMMEs (Department of Small Business Development, 2014).

Nemaenzhe (2010) points out that one of the development problems in the southern African region relates to the high failure rate of SMMEs, South Africa being no exception to this phenomenon. On the other hand, IOL (2018) established that 70% to 80% of SMMEs never made it to celebrate one year of being in business. Nemaenzhe (2010) argues that the failure of small businesses results from the managerial inadequacies of small business owners, organisational inefficiencies and environmental undertakings.

Olawale (2014) also concurs with the above arguments and further argues that the causes of failure of SMMEs can be categorised into internal and external factors. The internal factors influencing SMME failure rates incorporate poor customer service (bad attitude towards customers), poor training and development of staff and a lack of experience of managing members of the businesses (Olawale, 2014). External factors, on the other hand, include the unavailability of logistical chains, distribution costs, competition increasing the costs of doing business, financing, and crime and corruption (Olawale, 2014).

The problem that has motivated this research is that despite government's initiatives to support the development and sustainability of SMMEs, the failure rate of these enterprises in South Africa is still high (Olawale, 2014). Furthermore, a country such as South Africa that is experiencing unemployment, poverty and income inequality, the failure rate of SMMEs does not support the sector's ability to contribute to job creation, economic growth and poverty reduction (Olawale, 2014).

1.2. Research questions

In order to fulfil the purpose of this research study the following key questions will be asked as part of the research:

- What opportunities are available for SMMEs in engineering services?
- What criteria are used by big firms to appoint engineering contractors?
- What are the limitations of SMMEs in engineering design, maintenance and/or project management and execution?
- What regulations does government impose on big firms towards SMME relations?

2. Literature review

2.1. Government's perspective and vision

It has been acknowledged that similar to the rest of the world, SMMEs are key elements to facilitating growth and development in the South African economy (Bhorat et al., 2018). This is evident from the National Development Plan (NDP) 2030 vision, where the government announced its plans to achieve 90% of new jobs to be created by SMMEs (National Planning Commission, 2012). It is argued, that in South Africa, the setback is that the majority of small businesses are failing, resulting in an increase in unemployment rate, increased poverty rates and elevated crime rates (Nemaenzhe, 2010).

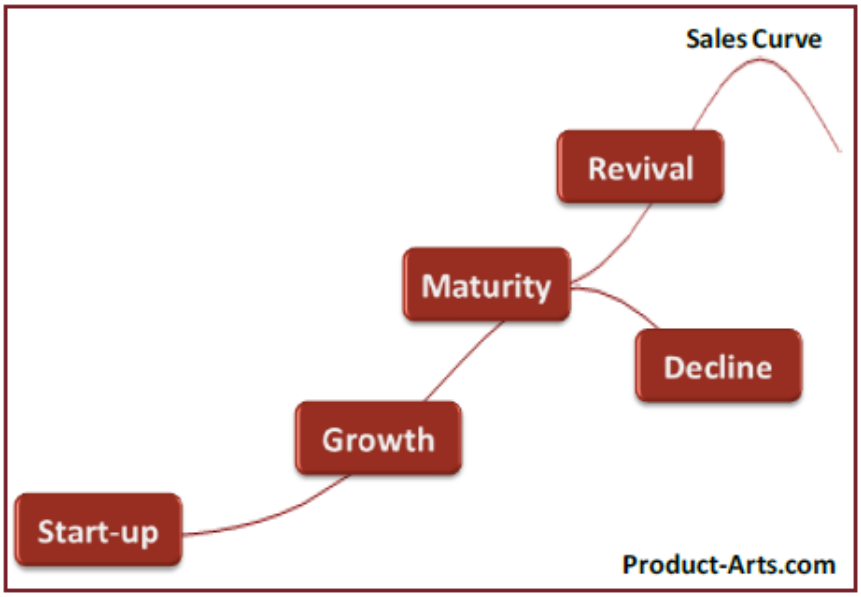
Mago and Toro (2013) argued that the government's support to SMMEs through these agencies (Nsika Promotion and Khula Enterprise) has not been effective due to the fact that the programs administrated by these agencies are low. Agwa-ejon and Mbohwa (2015) also concur that the uptake is low and hence there is no improvement on the SMMEs' success rate in the country. Nemaenzhe (2010) attested that one of the main development problems in the Southern African region continued to relate to the high failure rates of SMMEs and South Africa being no exception to this phenomenon.

2.2. Organisational life cycle

Vendetti (2010) asserts that from inception, businesses go through specific stages as a result of the business success or possibly hardships in the market. Allen (2017) concurs and further elaborates that a business goes through a cycle known as OLC or BLC (Allen, 2017). Both authors, Vendetti (2010) and Allen (2017), are in agreement that there are four major stages of the BLC, namely start-up (or birth), growth, maturity and decline.

Vendetti (2010), however, further argues that there is a fifth stage, called revival (or diversification), which may occur between the maturity or decline stages. Vendetti (2010) explains the concept of the OLC graphically, as shown in Figure 2.1. This graph depicts the number of sales over a period of time (Vendetti, 2010).

Figure 1 Organisational Life Cycle



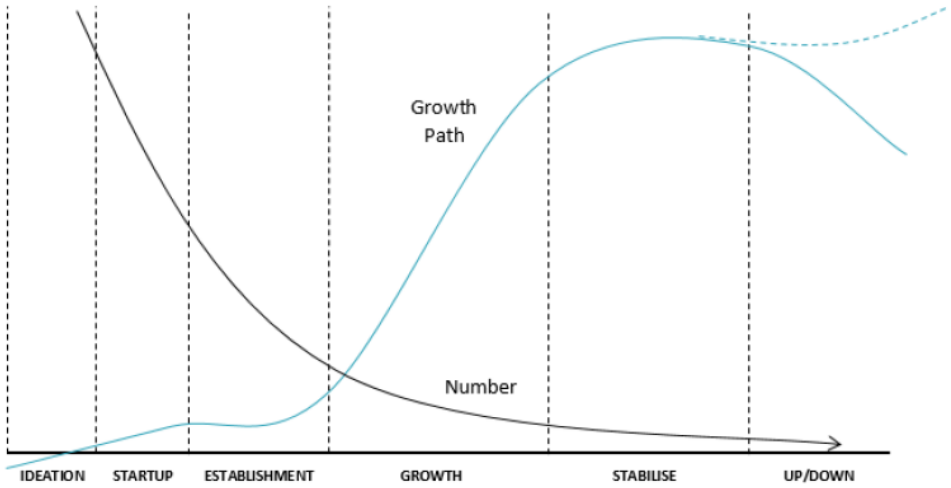
Source: Adaptation of Vendetti (2010)

Rahimi and Fallah (2015) argue that it is important to understand organisational behaviour at different stages of life for the better development of strategies, marketing and financial plans. Rahimi and Fallah (2015) believe that understanding the stages will assist entrepreneurs in aligning their actions to conquer the challenges of each stage and in the process, eliminating the risk of failure, thereby reducing the high rate of failure of SMMEs.

Start-up business failure rates and business incubation deficiencies

Hattingh et al. (2018) took the OLC life cycle path a step backwards to indicate that organisations starts off as ideas before they start up, as shown in Figure 2. Hattingh et al. (2018) plotted the curve of a number of businesses (represented by a solid black curve in Figure 2.2) on the same set of axes as the growth path curve or the OLC curve.

Figure 2 The Business Growth Curve



Source: Adaptation of Hattingh et al. (2018)

It can be seen that at the initial stages, there is a number of business ideas. The number drops from ideas to actual businesses that start up. Hattingh et al. (2018) assert that only a number of ideas tends to be established as enterprises from the start-up stage.

Hattingh et al. (2018) demonstrate that only approximately 10% of the companies that successfully start up experience growth. Moreover, the number of companies continue to decline during the growth stage and only about 2% (Bhorat et al., 2018) get to the stable stage. This is indicative of the fact that there is a high failure rate and growth issues encountered by the SMME sector.

2.2 Factors influencing SMME failure

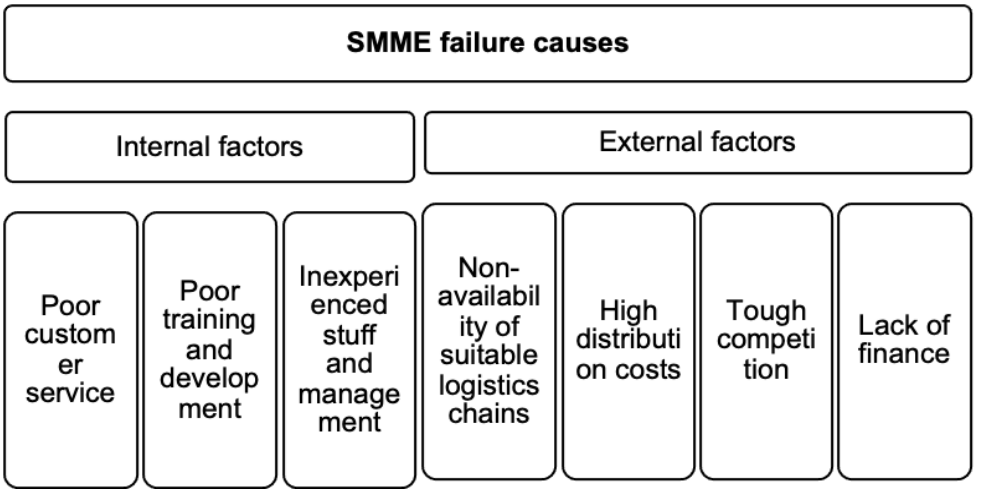
Olawale (2014) suggests that to understand failure, it must be viewed from a legal perspective. Therefore, failure results when a small firm is liquidated. Alternatively, failure can be associated to the rate of exit of business or owners from the SMME sector. In the RSA, one of the determinants of business failure is the Statistics of Liquidations and Insolvencies published by Statistics South Africa (Stats SA) (Olawale, 2014).

This section explores the common causes of failures of SMMEs, as discovered by different researchers, including Nemaenzhe (2010), Olawale (2014), Agwaa-ejon and Mbohwa (2015), among others. Nemaenzhe (2010) indicates that the failure of small businesses results from the management inadequacies of small business owners, organisational inefficiencies and environmental undertakings. Olawale (2014) also concurs with the above arguments and further explains that the causes of failure of SMMEs can be categorised into internal and external factors.

Therefore, Olawale (2014) identifies the internal factors influencing SMME failure as incorporating poor customer service (bad attitude towards customers), poor training

and development of staff and a lack of experience of managing members of the businesses. External factors, on the other hand, according to Olawale (2014), include the unavailability of suitable logistical chains, high distribution costs, tough competition rising costs of doing business, lack of finance, and crime and corruption. Figure 2.3 summarises the causes of failure of SMMEs.

Figure 3 SMME Failure Causes Summary Derived



Source: From Olawale (2014)

According to Olawale (2014), internal factors can be defined as those factors that are mainly controllable by the organisation. Controllable factors are those that can be mitigated through implementing strategic controls to prevent them from happening. As shown in Figure 3, these include a lack of experience, a lack of functional skills, poor staff training and development, and poor attitudes towards customers (Olawale, 2014).

According to Compare Business Products (2013), bad customer service has a negative impact on business. Compare Business Products revealed that 52% of people confirmed that good quality customer service experience would definitely lead to further purchases from the same organisation. It also appeared that 55% stated that they switched to another company for a service or product when they experienced bad customer service (Compare Business Products, 2013).

Olawale (2014) asserts that one of the success factors in the success of small businesses mainly at its initial stages is the ability of its founding leadership to continue to meet challenges as the business develops. Furthermore, according to Olawale (2014), entrepreneurs or founders reach an "executive limit" at which their lack of ability to manage the business becomes detrimental to the business. It is attested by Olawale (2014) that businesses that do not replace founders, especially after reaching the executive limit, are likely to fail.

2.3. External factors causing SMMEs to fail

Lapinskaite and Kuckailyte (2014) described the supply chain as a tool for cargo movement and further asserted that the chain was considered as the total sum of supply, material management and distribution actions. Lapinskaite and Kuckailyte (2014) further noted that as consumption and production continued to increase, enterprises engaged in finding ways of reducing costs aimed at achieving a competitive advantage over rivals.

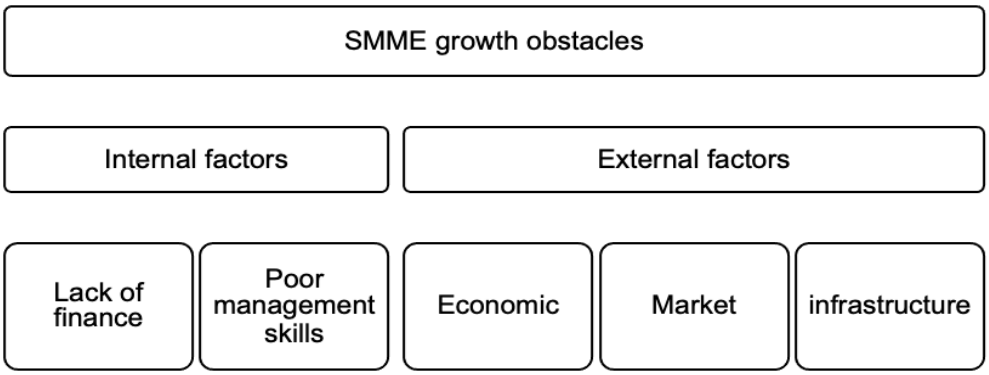
Enterprises need finances to start trading and to fund their growth initiatives, therefore,a lack of access to or unavailability of finance can be a constraint on business growth (Olawale & Garwe, 2010). External sources of finance may be from 'informal' sources such as family and/or friends, or from 'formal', market-based sources such as venture capitalists (Olawale & Garwe, 2010).

2.4. SMME growth obstacles

Olawale and Garwe (2010) determined that the economic prosperity of the Republic of South Africa largely depended on the development and sustainability of SMMEs. Wang (2016) stated that since the SMMEs are the economic growth drivers, especially in developing countries, it is important to understand their growth hindrances as well. Wang (2016) further concurs that as new businesses comes to life, their existence and survival environment influenced by both internal and external factors which tend to have a negative impact on the survival of small businesses.

Olawale and Garwe (2010) categorised the obstacles into five categories which falls within the internal and external factors. Figure 4 summarises the growth obstacles of SMMEs.

Figure 4 SMME growth obstacles summary derived



Source: From Bushe (2019)

Bhorat et al. (2018) pointed out that starting up a business required capital and, therefore, business owners either required private access to finance or they required access to credit. Wang (2016) points out that the barriers to external finance includes a high cost of borrowing and a lack of consultant support. It was revealed that bank

finance gradually increased with age, while informal finance decreased with the age of the firm (Wang, 2016). Many investments necessary to build a business from the ground up are much more valuable than what the average South African entrepreneur is able to afford privately (Bhorat et al., 2018). Access to financial resources was, therefore, found to be one of the strategic elements in supporting and promoting entrepreneurship; strengthening the enabling environment for SMMEs.

Bushe (2019) discovered that poor management skills were also known as managerial incompetence or management inadequacy, with its foundation from management inexperience affecting the growth of SMMEs. Wang (2016) also concurs that managerial competencies is crucial for the survival and growth of new SMMEs and that a lack thereof is a part of the causes for the failure of new SMMEs and hindrance to growth.

2.5. External factors affecting the growth of SMMEs

Fouad (2013) and Bushe (2019) established that the economic variables include the fiscal and monetary policies issues by the government, inflation, interest rates and foreign exchange rates. Bushe (2019) asserts that South Africa's current economic condition is characterised not only by high interest rates, but also by low growth rates, (low consumption) high inflation rates and declining exchange rates. These factors, therefore, have an impact on the demand for goods and services, which in turn affects the growth of new SMMEs, Bushe (2019) pointed out.

Factors, such as reduced confidence in products/services results in reduction in consumption, which, in turn, affect sales, revenues and the market potential of new SMMEs (Olawale & Garwe, 2010). Bhorat et al. (2018) point out that new entrants into a market are likely to be constrained by other players already operating in that market.

Leboea (2017) defines infrastructure as a fundamental physical and organisational configuration, which is required for the functioning of a society or enterprise, or the services and facilities necessary for the functioning of the economy. The definition continues to provide examples relevant to this context and these include telecommunications, electricity, serviceable roads, telephones, transportation media and postal services, which are said to be crucial for business start-up, development and growth (Leboea, 2017).

3. Research methodology

Having understood that the problem was two-fold, namely the high failure rate of start-ups and the stagnation of existing SMMEs, the researchers kept in mind that both had originated from internal and external environments. In this research study, the concept maintained factors that could be controlled (internal) and those that could not be controlled (external), causing the failure of SMMEs. However, the approach was slightly different as it seeked to explore the internal and external factors from a strategic management point of view. The framework that enabled this approach was the analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the enterprise.

3.1. Quantitative approach

For the purpose of this research, a quantitative approach was adopted. A questionnaire was developed so that statistical analysis be performed. Statistical data were collected about the ownership of enterprises. This provided an overview about how many SMMEs had sole ownerships and partnerships in the engineering services industry, the owners' origin, as well as their backgrounds.

For businesses, it was investigated which part of engineering the business was operating in, whether it was civil, mechanical, electrical or chemical. Current revenues were investigated based on revenue brackets, as well as the number of employees employed in each business.

Table 2 Business categories by employee size and gross turnover (Justino, 2015)

Type of Enterprise	Size of Employee	Gross turnover
Micro	1 to 10	≤ 250 000 USD
Small	11 to 100	> 250 000 USD and ≤ 3 million USD
Medium	101 to 200	> 3 million USD and ≤ 10 million USD
Large	From 201 and above	> 10 million USD

Source: Justino (2015)

The final part of the research was grouped into four categories, namely analysing strengths, weaknesses, opportunities and threats in line with the SWOT analysis. The SWOT analysis approach was the backbone of this research study. It was used to answer the research questions about what the real challenges faced by SMMEs were in the engineering services industry. Moreover, the SWOT analysis also helped in providing recommendations to new and existing SMMEs in engineering.

This research framework is intended to sample three different sources of information in order to make conclusions that are unbiased by looking at only one source of information. The first sample was obtained from SMMEs on the Consulting Engineers of South Africa (CESA) database. This source of information is credible, because it deals directly with the SMMEs in the engineering field, which is in line with this research.

The second set of information was collected randomly from independent SMMEs. It is also important to consider the views of independent enterprises to have an understanding of the advantages and disadvantages of not belonging to any professional body. Finally, the third sample was obtained from the big firms, such as Eskom, Sasol, Transnet, Samancor Chrome and South 32, in order to balance the research.

It must be noted, however, that this research did not sample the full population of the CESA company members, but rather a minimum of 50 companies from the CESA database. It is anticipated that organisations that operate under a certain set of guidelines (CESA members) and those that operate independently might have different views about the factors in this investigation.

3.2. CESA database

This research targeted a specific industry, namely engineering services in the South African context. Therefore, the target research sample was the SMMEs that subscribed to the Consulting Engineers of South Africa (CESA). A questionnaire was designed to gather information, such as the race, gender and level of education about the owner(s) of the enterprise in order to understand the profile of the people interested in the engineering services.

The next part of the questionnaire gathered information about the enterprise, which included categorisation in terms of the size of the enterprise, whether it was small, micro or medium, and then establishing whether it was a start-up business or an enterprise that had been in existence for a number of years, then finally establishing what current business activities, revenue streams and future plans there currently were.

The research questions, which were custom made for the identified engineering-intensive firms, were developed in an attempt to answer the research questions identified in the first chapter of this research study. Furthermore, access to supporting documents were requested as part of data collection when necessary. All confidentiality requirements to classified information were adhered to where required.

3.3. Reliability and validity of the data and the results

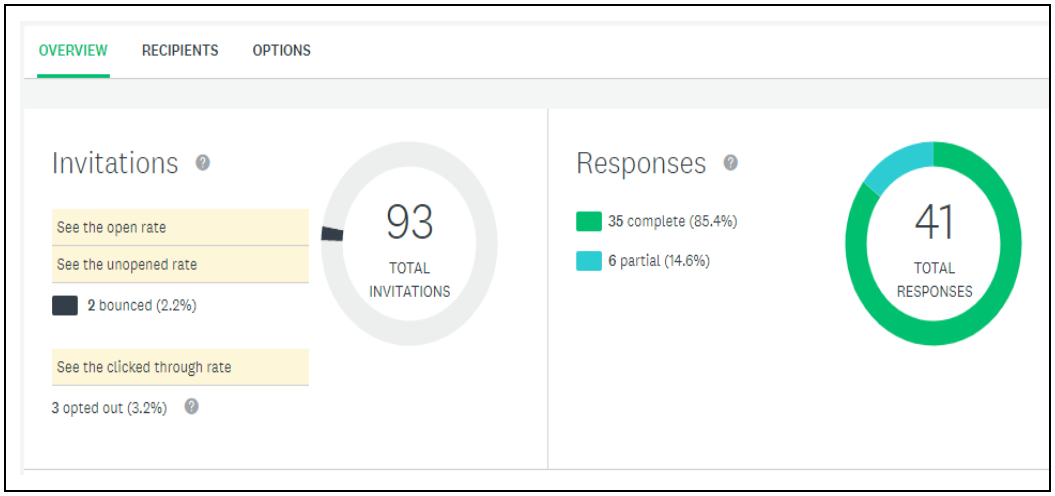
In this research, steps were taken to ensure that the questionnaire was aligned to the purpose of this research and that the aim of the research was kept in mind throughout the research process to ensure validity of the information gathered. The reliability of the data was ensured by employing the elimination method, as discussed in the process diagram of Figure 5. This will ensure that the research focus to engineering services is maintained.

Furthermore, the CESA database sample provides the validity of the target research sample in the engineering services field. Comparing the responses from SMMEs with what the big firms put forward in response to questionnaires provided a validation of the integrity of the data received and confirmed the reliability of the method of data collection, as well as the sources.

3.4. Data collection and analysis method

This survey was conducted on SurveyMonkey, an online survey development cloud-based software service company (SurveyMonkey, 2019) research development platform. Two methods were used to collect data. An email was sent through the SurveyMonkey platform to 93 engineering services companies (random selection) and only 41 companies responded with an 85.4% survey completion rate and a 14.6% partial completion rate. Figure 4.1 shows the rate of response from randomly selected engineering services firms. The emails and contact details were found through Internet searches and contact information from company-specific websites.

Figure 6 Email Invitation/Random Selection Response Rate



Source: SurveyMonkey (2019)

The second method of data collection was to email a survey link to the CESA head office's general email (general@cesa.co.za), which then distributed the link to its member companies to participate in the survey. According to CESA's website (CESA, 2017) and the approval letter obtained to use its members as a research sample, CESA has more than 500 members. However, the response rate was very low, which can be attributed to the limited time frame for which the survey was open for participation.

From approximately 500 engineering firms, only 27 (5.4%) responded fully to the survey without any partial completion. Therefore, in total, the responses obtained was 68% However, it is noteworthy that one of the questions in the survey required the respondents to indicate whether or not their company was a member of CESA and it was found that 49.02% (25 companies who answered the question) were members of CESA, 50.39% (26 companies who answered the question) were not members, while 17 respondents opted not to answer this question.

In Table 2, it can be seen that the majority of the respondents was male. The modal age group was 25-34 years old, making 59.70%, which was above the median total sample, followed by ages 34 to 44. The ages of the respondents were slightly positively skewed. However, it indicated that the SMME sector was populated by youth. This is a positive indicator in support of the 2030 Vision of the National Development Plan where government aims to create 90% new jobs through SMMEs (National Planning Commission, 2012).

Table 3 Evaluation of Respondents' Demographics

Respondents' Gender	Responses	
	% Conversion	Actual

Male	77.61%	52
Female	22.39%	15
Respondents Age Distribution in years		
18 to 24	1.49%	1
25 to 34	59.70%	40
35 to 44	26.87%	18
45 to 54	7.46%	5
55 to 64	4.48%	3
Respondents Ethnicity		
Black or African American	84.85%	56
White or Caucasian	10.61%	7
Indian	3.03%	2
Another race (please specify)	1.52%	1
Respondents Relationship to the Business		
Employee	41.79%	28
Owner	38.81%	26
Shareholder	11.94%	8
Other (please specify)	7.46%	5

Source: Authors research results

The African race was the highest number to take part in the survey at 84.85% of the total respondents, followed in small proportions by white people, Indian people and other races, as shown in Table 3. This can be related back to reports by Statistics South Africa (2018), which revealed that African people made up the highest percentage of unemployment in South Africa. Moreover, at 41.79%, employees were the majority of

the respondents, followed by business owners and shareholders in different proportions. This sample is well balanced and gives credible information from different stages of the organisational structures.

From Table 4, it is evident that roughly 89% of the respondents at least had a post-matric degree or diploma. Hunady et al. (2018) argue that university graduates are most likely to be involved in starting up a new business. It was discovered that having a higher education qualification was helpful for starting up a new business, as well as contributing to the success of new businesses (Hunady et al., 2018). Moreover, Hunady et al. (2018) further reveal that individuals who took entrepreneurship courses were more active in starting businesses, which also correlated positively with the start-up company's success.

Table 4 Educational Level and Directorship

Highest level of qualifications of respondents	Responses	
	% Conversation	Actual
Diploma	39.71%	27
Degree	35.29%	24
Graduated from high school	16.18%	11
Masters Degree	7.35%	5
Number of directors per company		
1	32.84%	22
2-5	55.22%	37
6-10	4.48%	3
11+	7.46%	5

Source: Authors research results

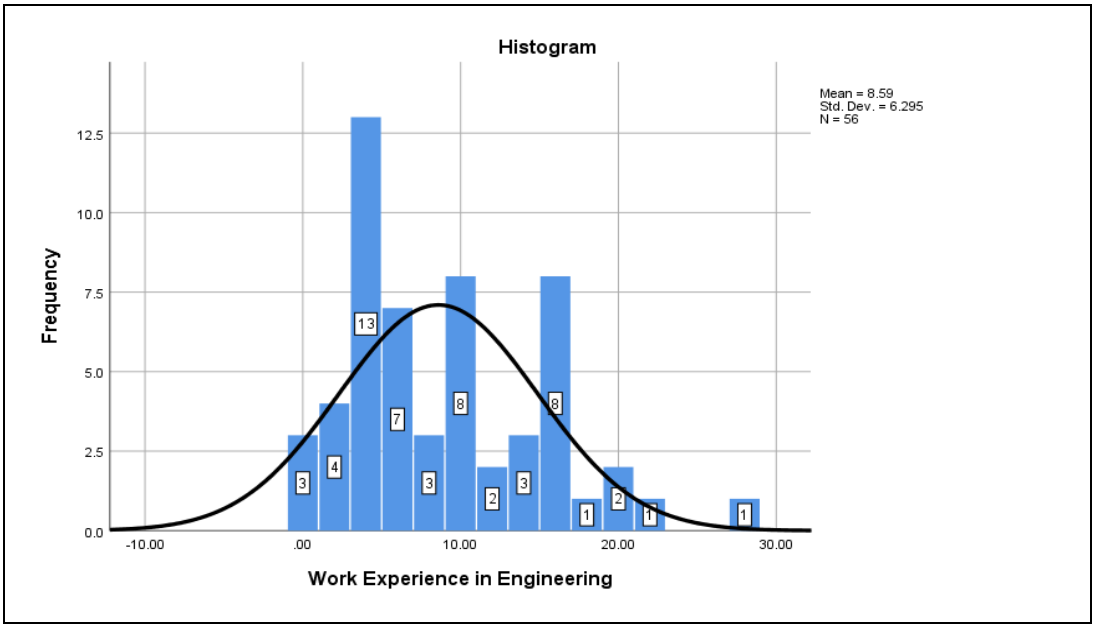
From the sample, 22 respondent companies were sole traders and 37 were partnerships with between two and five owners.

3.5. Engineering experience

The sample confirmed the composition of the population to having had obtained higher education (degree and diplomas). Figure 4.3 shows the engineering work experience of

the respondents in years. From the diagram, it can be seen that the average number of years' experience of the respondents was 8.5 years.

Figure 7 Respondents' Years of Experience in Engineering



Source: Authors research results

Figure 7 shows the respondents' educational background. Almost three-quarters come from an engineering background, as expected. The remaining 26.47% is spread across other academic fields, which balanced the data received to balance the bias that may be obtained from engineering respondents only.

4. Conclusions and recommendation

In light of the analysis, it becomes evident that Small, Medium, and Micro Enterprises (SMMEs) within the engineering sector confront a multitude of challenges, encompassing both internal and external factors. This research underscores the pivotal role played by SMMEs in the formal economy, particularly those offering engineering services to firms with intensive engineering operations in South Africa. Despite the government's ambitious objective of generating 90% of jobs through SMMEs by 2030, the persistent high failure rate of these enterprises raises concerns. This study specifically delves into the challenges faced by such enterprises, including those affiliated with Consulting Engineers South Africa and various random engineering service firms.

As South Africa pursues its National Development Plan, it becomes imperative to implement practical measures that address the specific challenges encountered by SMMEs providing engineering services. A collaborative effort involving government bodies, industry associations, and the enterprises themselves is crucial to creating an

environment conducive to the sustained growth and success of these essential contributors to the national economy.

The findings underscore that the limited capital of owners poses a significant obstacle to the growth initiatives of engineering services' SMMEs. Additionally, the lack of adequate resources, business facilities, and specialized equipment exacerbates the competitive disadvantage faced by these enterprises, resulting in stagnation. Furthermore, the study highlights the impediment posed by a lack of awareness and information about government initiatives, hindering SMMEs' ability to capitalize on available support.

The study emphasizes the necessity for targeted interventions addressing both internal and external factors to cultivate an environment conducive to the growth and sustainability of these enterprises. Recommendations encompass enhancing leadership and management skills, refining customer service, facilitating access to finance, and addressing broader economic variables impacting the SMME landscape. As South Africa strives to meet its ambitious job creation targets through SMMEs, the insights gleaned from this study can inform policy decisions and industry initiatives, propelling these enterprises towards success within the dynamic engineering sector.

Despite the challenges, the research underscores the resilience and innovative potential of SMMEs in the engineering sector. Recognizing and harnessing this potential can significantly contribute to economic growth, job creation, and the overall advancement of the engineering industry in South Africa. Collaborative efforts by policymakers and industry leaders to implement the suggested strategies present a promising opportunity to establish an enabling environment that fosters the success of SMMEs and, consequently, contributes to the broader economic prosperity of the nation.

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