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Development of a Conceptual Framework for Quality Management System Implementation in Small and Medium Enterprises in South Africa

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Abstract. Sustainability challenge remain a prevalent issue among the SMEs in South Africa. This implies that the survival of SMEs in South Africa after few years of existence is a challenge. In order to promote the sustainability and operational efficiency of SMEs in South Africa, this study aims to develop a conceptual framework for the implementation of Quality Management System (QMS). Relevant literature was reviewed to get an insight into the significance and challenges faced by the SMEs in South Africa. The literature also indicated the feasibility for process improvement, profitability and sustainability if the SMEs adopts the culture of QMS. This led to the development of a conceptual quality management framework for implementation in SMEs. The framework incorporates the basic quality management system requirements with a focus on process efficiency and sustainability. It is simple and could easily be implemented or modified by the SMEs.

Keywords. Conceptual framework, process efficiency, QMS, SMEs, sustainability

1. Introduction

Customer satisfaction driven by good quality of products and services is the heartbeat of most businesses. Quality is important in both developed and developing businesses. SMEs can adopt QMS in their business in the early stages to improve growth and sustainability of the businesses. According to Sahoo and Yadav [1], SMEs view quality management as a tedious and expensive exercise and therefore become reluctant to implement quality management practices. However, in this era of a competitive global market, SMEs need to implement strategic management tools to remain competitive. The implementation of QMS is one of the ways to do so [1-2]. Some existing works concur that there is a positive relationship between the implementation of TQM and organizational performance [1-2].

Neo *et al.* [3] conducted a study on QMS implementation in the South African SMEs and found that SMEs are significant to the development of the South African economy. Jayasundara *et al.* [4] opine that this is true globally. SMEs require little start-up capital and generates revenue for both individuals and the government.

The small enterprise development agency (SEDA) in SA is mandated to implement the government's small business strategy, design and implement a standard and common

national delivery network for small enterprise development and integrate government-funded small enterprise support agencies across all tiers of government [5]. Nevertheless, sustainability challenges remain prevalent among SMEs in SA. According to SEDA [6], two to three years of enterprise age is a critical threshold for an SME in terms of longer-term survival. Brendon [7] found that 61% of the surveyed sample believe that the regulatory burden has increased thereby putting pressure on the SMEs in a bid to meet up with the regulatory requirements.

The purpose of this study is to develop a conceptual framework for the implementation of QMS in the SMEs in South Africa. The motivation for this study stems from that; if a culture of QMS is adopted and implemented by the SMEs, there is a probability of an improvement in operational efficiency leading to improved customer satisfaction with an increase in the turnover and profitability. There is a lack of information regarding the level of adoption and implementation of QMS by the SMEs in South Africa. In addition, this work provides a conceptual framework, which shows how SMEs can implement a quality management framework in their business to enhance operational efficiency.

2. Literature Review

This section reviews the proposed solutions that can be employed to enhance quality management system implementation in small and medium scale enterprises.

South African SMEs have a concerning low survival rate, 80% of all small businesses fail within the first five years due to sustainability-related issues in terms of finance, management, competitive edge, and legal requirements amongst others [8]. The number of SMEs less than three years in business has gradually declined from 35% in 2008 to 26% in the first quarter of 2019 [9].

The SEDA [10] report informs that SMEs contributed 18% GVA in 2010 quarter four, and their contribution increased to 22% by 2015 quarter two (GVA is the gross domestic product (GDP) before taxes and subsidies are subtracted). Table 1 presents the GVA to GDP.

Table 1. SME Gross valued added to GDP [10].

R million	Dec-2010	Jun-2015	% Change
Large	234 619	257 056	10%
Medium	31 125	40 982	32%
Small	84 923	149 464	76%
Total	350 667	447 502	28%
RSA GVA	634 375	851 095	34%
%SMEs	18%	22%	

Gauteng is one of the nine provinces in SA, though it is the smallest of them all as per geographical features as compared to other provinces [11]; it is where most businesses are centralised. Gauteng contributed 34% to the country's 2018's GDP [12]. SA has 2 550 540 SMEs [9], as per Table 2, and 903,220 of the SMEs are in the Gauteng province. This is the highest contribution (35.4%) as compared to the other provinces; with the second highest being KZN (15.3%) and the lowest being Northern Cape with only 1% contribution (25,577). Table 2 presents the distribution of the SMEs across the SA provinces.

Table 2. Distribution of the SMEs across the South African province [9].

Province	Number of SMEs	Distribution (%)
Gauteng	903,220	35.4
KwaZulu Natal	390,115	15.3
Limpopo	295,978	11.6
Western Cape	288,194	11.3
Mpumalanga	219,083	8.6
Eastern Cape	179,908	7.1
Northwest	126,725	5.0
Free State	121,740	4.8
Northern Cape	25,577	1.0
Total	2,550,540	100

SMEs are said to be the catalyst for economic growth and development and a key to poverty alleviation [13]. The SMEs in South Africa increase the employment rate by 66% in the first quarter 2019 [10].

2.1 Challenges faced by SMEs

The challenges faced by SMEs include: lack of skills, expertise, training and education, limited access to financial resources, lack of access markets, poor awareness about the concept and implementation of QMS, lack of support structures, lack of appropriate technology and shortage of other resources like human and material resources [13-14]. Tracy [15] stated that in many cases, quality problems are more a result of shortcomings in the QMS itself than of the people running it. Cebos [16] points out that a proper implementation of a QMS can increase a company's profits and its bottom line. As crucial as SMEs are to the SA economy, these enterprises are faced with challenges that threaten their sustainability and growth.

SA SMEs face pressures in securing the right skills for their businesses. Most of the skilled personnel are absorbed in the public sector and bigger companies. This skills shortage is further compounded in its impact on SMEs, as skills are often unavailable or unaffordable for the SMEs [17]. Herrington *et al.* [18] found that given the low levels of education and skills in SA; certain sectors remain inaccessible to most potential entrepreneurs. The quality of SA's education system ranks 119 out of 141 countries according to the rankings of the Global Competitiveness Report 2019 [19]. Many SMEs are learning important elements required for business survival but are mostly not implemented due to lack of the required expertise as well as skills and time shortages. Despite access to coaches and mentors, as well as having training on the aspects of business, SMEs often find themselves without the benefit of implementing the right business models [17].

Poor management skills when interacting with employees are one of the challenges and employees tend to leave work when treated poorly by management. The criticality in management skills is supported by Darroch and Clover [20] who found that the lack of management capacity in the enterprise is a challenge for SMEs. Deficiencies in management and leadership skills were identified among the reasons for small business failure [21]. When this is the case, staff turnover becomes too high, and the cost of hiring and training new staff members increases (EVA financial solutions, 2019). EVA financial solutions [22] further identified the lack of planning in SMEs to be a problem. This includes the lack of detailed planning on how the business is going to be run, lack of well-defined short-term and long-term goals and lack of proper records and financial

systems. The lack of planning extends to SME owners being the go-to person for everything in the business, thereby compromising the time allocated for growing the business and attending to strategic issues relating to the business [22]. Such management skills will also show on good customer relationships, which many SMEs lack. There are also structural challenges existing such as stringent labour laws. SBP alert [23] reported that small firms continue to suffer direct and opportunity costs because of unnecessary red tape and burdensome regulations. According to Nieuwenhuizen [24] excessive red tape with regards to compliance with labour laws, human relations, industrial relations, tax-related issues, legal requirements, municipal regulations, and support for business start-ups are key obstacles experienced by the SMEs. Falconer and Herrington [19] assert that there is a significant over-regulation of small businesses, with unnecessary bureaucratic burdens, and there remain various labour market rigidities. Kesper [25] suggests that small business performance does not depend only on the removal of constraints of public policies and regulations but decisively on industrial and organisational structures. The other challenges that SMEs have been faced with includes operational matters such as lack of diversification or creation of new products for new markets. The development of new products to service a new market is an option that many SMEs have not ventured into. Just over half (55%) of early-stage entrepreneurs in SA uses the latest or new technology, compared to an average of 45% for the Africa region [18]. A quarter of SA entrepreneurs use the very latest technology. An area of concern is that 45% of SA entrepreneurs have a low technology orientation (i.e., using no new technology) [18]. According to EVA financial solutions [22], businesses that have adopted cloud accounting and other technologies have achieved efficiencies in several areas of their business. Real-time data improves the method and quality of decision making in many small businesses. A study by Jayasundara *et al.* [4] showed that SMEs across the globe face similar challenges as stated in the literature review, the global challenges are mainly market competition, financial crisis, information communication technology, change in consumer requirements, and international unrests.

2.2 Quality Management System (QMS)

QMS is a documented collection of business processes focused on improving services and consistently meeting customers' requirements and enhancing customer satisfaction [26]. A properly implemented QMS can improve the business process, profitability, sustainability, product quality and customer satisfaction [3], [27-29]. The purpose of QMS implementation in an organisation is to ensure that products and services conform to standards and also to ensure consistent quality of products and services. Various quality management methodologies are available such as, Total Quality Management (TQM), Business Excellence Models (BEMs), ISO, Six Sigma, Lean Management, LSS and Business Process Reengineering (BPR) [30-31].

Nibusinessinfo [33] suggested the following steps to the implementation of a quality management system. Top management commitment to change and improvement is emphasized as vital to the success of system implementation, followed by the commitment of all employees. Business planning, employee training, document control, continuous improvement, and review of business performance some of the factors needed in developing a QMS. In addition, Lotich [34] suggests the following four steps that can also be used to develop a QMS, which includes, creation of a written document that defines quality, development of standard procedures, development of instructions and creation of work instructions and collection of data and the creation processes for collecting data. Quality management tools are tools that are used for quality control and monitoring. For effective quality management, tools such as the control charts, Pareto

chart, cause and effect diagram, checklist, and flow chart are suitable [35]. LSS is a quality management methodology that can be implemented in SMEs. LSS is a combination of Lean management and Six Sigma strategies. Rastogi [36] states that the Lean management principles can help to reduce or eliminate process wastes while Six Sigma focuses on reducing variation in a process and ensure good product quality. Therefore, the principles of Lean Six Sigma can help to reduce waste generation, improve the efficiency and quality of the process within an organization. Antony [37] indicates that Six Sigma is equally applicable to both large corporations and small companies. A popularly used QMS is the International Organisation for Standardization (ISO) 9001. ISO 9001 is a standard within the ISO 9000 series of QMS [26]. ISO 9001:2015 is the updated version of ISO 9001:2008. The standard is intended to enable effective and efficient implementation of a QMS, and it is applicable to all organizations, of any size, complexity or business model [26]. More than a million organizations worldwide are ISO 9001 certified [38]. According to Kain [39], the knowledge of QMS like ISO 9001 allows SMEs to make better decisions, contribute to their sustainable development and, ultimately, satisfy the customer as the market competition increase. Fonseca [39] stated that ISO 9001:2015 is adoptable to SMEs and the service industry, the standard puts more emphasis on process approach and less on documentation.

3. Methodology

Figure 1 presents a conceptual quality management framework for implementation in SMEs. The framework incorporates basic quality management system requirements with a focus on process efficiency and sustainability.

The framework is based on common fundamentals of the quality management requirements. Figure 1 demonstrates a conceptual framework that consists of five stages, namely the input, internal processes control, process output, measurement and evaluation of the output, identify opportunities for improvement, and implement the changes for improvement. In the input stage, the SME determines the needs and expectations of the relevant stakeholders, investors, owners, employees, community, suppliers and the local government. It is important to know and understand the requirements of the stakeholders to determine a way to meet their requirements [40]. The second stage determines the internal control systems to be implemented. At this stage, the SME plans how to meet the requirements of its stakeholders, select the suitable quality management tools to use; in some cases, this can be a software program. They should also define the work processes and assign the roles and responsibilities to the relevant competent persons. It is also important to document the process where necessary, for instance the business objectives, who is responsible to meet the objective, how often and how will the objective be measured. The third stage is the desired control system output stage where the desired output is indicated. Output of the process is measured and evaluated to identify opportunities for improvement [41]. The last stage is to implement the changes for improvement and incorporate them into the control system. The presented framework is developed to enhance the adoption of QMS in SMEs. The framework is simple, and can be modified to any organization, specifically SMEs.

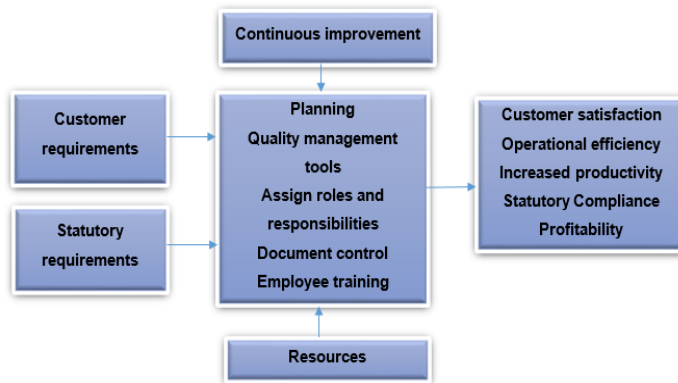


Figure 1. Conceptual frameworks for QMS implementation in SMEs.

It is noteworthy to mention that there is no single QMS that fits into all organisations. Thus, organisations can build their own QMS to meet their needs. However, there are some basic requirements that such QMS must meet. The ISO 9001 QMS can act as a guide to any organisation who desire to build its own QMS. The following are some of the guidelines that can assist any organisation who desire to build its own QMS.

First, a quality policy must be put in place. This policy will define what quality means to the organisation, customers and regulators. It can be stated in the form of organisations vision or mission statement that indicate the commitment of such organisation to pursue quality. Second, is the quality manual. This will summarise the entire QMS and will enable personnel and clients easily understand the structure of the QMS. Third is the quality objective. The objective defines the organisations strategic and specific goals and translates them into practice. The fourth is the organisation's structure and responsibilities. This will specify how activities are coordinated and directed towards the achievement of the set goals as well as the assigned responsibilities of individuals within the organisation. The fifth is the documentation and record controls. Record keeping is crucial to the success of the QMS implementation and the overall organisation's success. The controls will indicate how documents and records will be handled (created, edited, shared, stored etc.). Documents and records can be managed electronically to limit the access of people and to automate the control process in order to make the handling process easier and time effective.

The sixth is the processes and procedures. At this phase, there is a need to identify the organisation's processes, define and establish process standards, establish methods for performance measurements and continuous improvement amongst others. The link between the processes and procedures should also be established in order to identify the potential bottlenecks and eliminate them.

The seventh is the data management and analysis. In this digital era, the performance of many organisations are driven by data, thus, the need for effective data management. Data management encompasses the processes of data acquisition, transmission, sharing, storage, retrieval amongst others. The analysis of the acquired data can promote effective decision-making. The eighth is continuous improvement. Organisation must endeavor to move beyond quality management to quality improvement. At this phase, commitment must be shown to process and quality improvement. The ninth is the quality instrument control. The tools used for performance and quality management must be controlled and

calibrated according to standards to avoid error due to incorrect measurement. Finally, all the preceding phases should be periodically reviewed and the performance of the developed QMS should also be reviewed to ensure it meets the objectives. Wherever lapses are identified, corrective actions must be taken.

4. Conclusion

The aim of this study was to develop a conceptual framework for the implementation of Quality Management System (QMS) by the SMEs in South Africa. This was achieved with the review of relevant literature, which provided insights into the significance and challenges faced by the SMEs in South Africa and the feasibility of solving the identified challenges with a properly developed and implemented framework. This led to the development of a conceptual quality management framework for implementation in SMEs. The developed framework is simple and incorporates basic quality management system requirements with a focus on process efficiency and sustainability. Thus, it could easily be adopted by the SMEs. Furthermore, specific guidelines were highlighted to assist any organisation who desire to build its own QMS. Thus, the proper development and implementation of QMS can serve as a guide for organisations to achieve its objectives of quality, customers' satisfaction and continuous improvement.

It is therefore recommended that SMEs adopt and modify the framework based on the peculiarities and business model. Future works can consider the performance evaluation of the developed framework using a specific SME as a case study.

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