Impact of Total Quality Management (TQM) on Service Delivery in Swaziland’s Sugar Industry

Kongolo, M1*, and Dlamini, D.F.2

1, 2. University of Swaziland, Department of Economics, Kwaluseni Campus, Swaziland

This study investigates TQM implementation in Swaziland’s sugar industry and its impacts on customer service delivery. A questionnaire was used to collect the data from respondents, who were employees of the Swaziland’s sugar industry. Statistical techniques were used to analyze the data. The findings indicated that sugar industry used TQM to increase profit margins and improve quality of products, improve productivity, enhance service delivery, customer satisfaction, increase product price and market share. The findings also suggested that TQM can enhance service delivery to achieve greater growth of the industry.

Keywords: total quality management, service delivery, organizational structure, business management, business excellence, implementation strategy, sugar industry, Swaziland

INTRODUCTION

Historical background of Swaziland sugar industry

The sugar industry plays crucial role in the economy of Swaziland. Its size and performance have had a significant impact, both directly and indirectly, on the rest of the country’s economy. As background to understanding its importance and relationship to the rest of the economy, its historical development and current profile have been outlined in this section. Events occurring in the economies of other countries impact positively/negatively in Swaziland’s economy, particularly on national socio-economic development process (Nkambule, 2010). It is important to pay careful attention by highlighting theses events for the benefit of development process. The economy of Swaziland is an open economy and as such, it is often subject to influences emanating from the rest of the world (SSA, 2010). The origins of Swaziland’s sugar industry can be traced back to an irrigation project in the lowveld area at Big Bend in 1956. Early production at the Big Bend mill amounted to 5 600 tons per annum. The mill was subsequently upgraded along with the construction of a second mill further north at Mhlume in 1960. The industry took a quantum leap in 1980 with the commissioning of a third mill at Simunye. By the end of the 1992/93 season, Swaziland’s sugar production had been increased to 471 000 tons, nearly 90 times the output of the fledgling industry of the 1950s (SSA, 2010).

The operations of the sugar industry are regulated by the Council of Swaziland Sugar Association

*Corresponding author: Kongolo, M
University of Swaziland, Department of Economics, Kwaluseni Campus, Swaziland.
E-Mail: mkongolo@uniswa.sz
(SSA), who is the highest policy-making body. The Council, in turn, comprises twelve members from the Swaziland Sugar Millers Association (SSMA) and twelve members from the Swaziland Cane Growers Association (SCGA). Presently the country’s sugar industry is the single biggest industry with revenues in excess of E2 billion per annum. Swaziland Sugar Association’s mandate has been to promote efficient production and optimal distribution of the sugar. The number of smallholder growers, mostly on Swaziland’s Nation Land, has grown considerably in recent years. Currently, the total annual sugar production stands at approximately 640 000 tons, with a total area under sugarcane of approximately 52 000 hectares. The production scenario speaks directly to the high efficiency of sugar production in the country. At the same time, the country has continuously retained its top-10 position amongst low-cost sugar producers in the world (SSA, 2010).

The Problem

Swaziland sugar industry has benefitted from sales to preferential markets in the past, in addition to the domestic, mostly the Southern African Customer Union (SACU) market. The exposure to the low-priced world market has impacted negatively on the product over the years as a result of improved access to preferential markets, especially the EU (SSA, 2010). The competitive trend in the world of business has since called for management of firms and industries to strategise and to ensure that services rendered to customers are of high quality with right specification. Customers are economic in nature and as a result they would like to derive better satisfaction on money spent. This has invariably led the issue of total quality management (TQM) and effective service delivery by sugar industry in Swaziland.

Although there is a considerable literature on TQM that provide general investigation of TQM practices implementation in the manufacturing and service industries, there is however scarce existing literature in developing countries (Powel, 1995; Prajogo, 2005). Although TQM practices are applied differently in manufacturing and service industries, it is interesting to juxtapose and compare the TQM practices implemented and the relationship of these practices to service delivery in both manufacturing and service industries. Correctly managed TQM towards achieving maximum service delivery is strategically and tactically important for obtaining a competitive advantage in the manufacturing and service industries (Cheah et al, 2009). In order to provide Swaziland manufacturing and service industries with practical assistance in dealing with TQM and its related implementation knowledge, this study investigated the implementation of TQM practices to examine its impact on service delivery in the sugar industry in Swaziland.

Given the above background, the main objective of this study was to investigate the importance of TQM implementation in Swaziland’s sugar industry and its impacts on customer service delivery. The paper builds upon the foundation of the major research done elsewhere on TQM practices and implementation. It attempts to provide holistic perspective of TQM practices implementation to promote business excellence in the Swaziland manufacturing and service industries.

Swaziland manufacturing industry

Swaziland manufacturing consists of export-oriented industries, namely: wood pulp production, drink processing, fruit canning, and sugar processing. The country’s manufacturing growth in the mid-1990s was attributable to increased production of drink processing and sugar-based production activities. Usutu Pulp has been the leading wood pulp processing industry and the country’s largest employer. Other industries such as agricultural machinery, electronic equipment, refrigerator production, textiles, footwear, gloves, office equipment, and furniture are also important parts of Swaziland’s manufacturing sector, accounting for over 40% of GDP (Nkambule, 2010). Swaziland sugar industry generates revenues and is a large contributor to government tax revenues. Sugarcane growing contribute about 66% to agricultural output and 37% to agricultural employment. Strong linkages existed with other sectors in the economy on both the input and output side. These linkages become a conduit through which the multiplier effect
works itself out in determining the effective contribution of the sugar industry to GDP. The contribution of sugar industry to GDP can be as high as 30%, if other linked sectors were included. The sugar industry depended on foreign trade and preferential market access for its survival. The country sugar industry’s global competitiveness has been 5th low producer in the world in 2007, however, it presented opportunities for long-term sustainability (SSA, 2010).

**Importance of the study**

Various empirical studies have examined the impact of TQM practices on performance relationships in large firms (Powell, 1995; Ahire and Golhar, 1996; Motwani, 2001; Montes et al., 2003; Brah and Lim, 2006; Kapuge and Smith, 2007). In contrast to these studies, this research examines these relationships in a different way. It adopted a simple approach to investigate TQM practices - relationship with service delivery in Swaziland Sugar industry. A theoretical model presented in this study can be used in developing an integrated model in examining the TQM practices effectiveness and success as experienced by the organization, and which can be used as a basis for future investigations. Given that most studies on TQM practices have been carried out mainly in developed countries, the present study contributes to empirical literature on TQM practices and implementation by examining their impact on the Swaziland sugar industry. It is expected that this study will complement the body of knowledge by providing new empirical insights into the relationship between the TQM practices, organizational performances and service delivery.

**REVIEW OF RELATED STUDIES**

**Quality management concept defined**

Quality management is a term that has a specific meaning within many business sectors. It does not aim to assure ‘good quality’ by the more general definition, but rather to ensure that an industry’s product is consistent by having the following four main components: quality planning, quality control, quality assurance and quality improvement. Quality management focuses not only on product or service quality, but also on the means to achieve it (Kenneth, 2005). Quality management therefore uses quality assurance and control of processes as well as products to achieve more consistent quality. Quality is a dynamic state associated with products, services, people, processes and environments that meets or exceed consumer’s expectations. Quality is a key strategic factor in achieving business success (Geotsch and Davis, 1997). Quality is what is more needed/required for competing successfully in today’s global market place. It has become the key slogan of organisations striving for a competitive advantage in markets characterised by liberalisation, globalisation and knowledgeable customers (Sureshchandar et al, 2001). Quality management is an important component of the overall organizational structure. It is the quality systems that have played critical roles for both managers and quality professionals in various organisations (Lee et al, 2003). Total quality as an approach to doing business, it started to gain wide recognition in the US in the late 1980s and early 1990s (Ahmed and Sushil, 2008). Individual concepts such as the use of statistical data, teamwork and employee involvement have been used by visionary organizations for years. It is the pulling together and coordinated use of these and other elements that gave birth to a comprehensive concept known as total quality management (Goetsch and Davis, 1997).

**Total Quality Management (TQM) concept defined**

To understand the term TQM, we need to understand first the concept of quality. Quality encompasses each and every aspect of the industry, it is like an emotional experience for the customer. Customers want to have goods and services which correspond to the values of their purchases. They need to be sure that their money is well spent, and are encouraged to be associated with the industry that projects good quality image (Johnson, 1991). Quality is a performance in the standard expected by consumers. It means doing the right thing in the right way and always trying for improvement (Romano, 1992; Geotsch and Davis, 1997). The growing complexities of today’s organizations require a definitive management approach to ensure complete efficiency and...
productivity. That definitive approach is what is called total quality management (TQM). The concepts of TQM vary according to the specific context within which managers and practitioners operate. TQM is like a race without end, that is, it entails a restless search for continuing improvements. The Japanese discovered it and named it ‘Kaizen’, meaning that ‘little steps forward each and every day’ (Thompson and Strickland, 2001).

TQM is generally recognized as an innovative new system of principles, tools, and practices needed to manage a firm/industry, to provide customer satisfaction in a rapidly changing global economy. Using TQM not only eliminates product and service defects, but enhances product design and speeds service by reducing costs. Above all, it changes the organizational culture and improves the quality of work life (Opinski, 2010). The concept of TQM refers to the culture and attitude of organization which is in a continuous motion of improvement, to provide top quality products and services to the customer base which satisfy their needs. The culture and attitude of the organization is crucial in respect to all levels of organization and it is what contributes to organizational operations. This means that processes and activities in production get completed accurately on time by meeting product standards that are put in place, and by eliminating defects and waste as much as possible from the organizational operations. TQM is a “holistic” business management methodology that aligns the activities of all employees in an organization with the common focus of customer satisfaction through continuous improvement in the quality of all activities on goods and services (Padhi, 2008).

TQM establishes emphasis on the firm’s wide quality including a continued improvement, quality oriented culture that is monitored very closely by management, and statistical tools that are used for designing and producing quality goods (Burrill and Ledolter, 1999). It is an effective system for integrating the quality improvement and quality maintenance efforts of the various groups in an organization so as to enable production of goods and services at the most economical levels of customer satisfaction. (Walton, 1999). Walton believed that the survival, profitability and performance of the firm is determined by how its customers feel about its products and services. This is why all performing industries have the cultures of making their customers happy and satisfied through total quality in products and services delivery. (Thompson and Strickland (2001), argue that TQM is a philosophy of managing a set of business practices that emphasises a continuous improvement in all phases of operations, with 100% accuracy in performing activities, involvement and empowerment of employees at all levels, team-based work design, benchmarking, and fully satisfying customer expectations.

**TQM Implementation**

With increased globalization, manufacturing industries are facing a challenging competitive environment. They must create conducive conditions that enable them to compete locally and internationally. Hence, every manufacturing industry will seek to adopt and implement a set of management practices that can help them to become successful. Such management practices will assist them to identify challenging conditions and respond to them through continuous improvement (Fassoula, 2006). TQM has been one form of operational management practices which has received great attention in the last decades. The implementation of TQM has the potential to improve the performance of manufacturing industries in general and customer satisfaction (Jung and Wang, 2006). TQM practices implementation is positively correlated with the industry operational performance, but it marginally affects organizational performance (Broetzmann et al., 1995; Choi and Eboch, 1998). Petroni (2002) and Seth and Tripathi (2005) argue that recent review of literature on TQM practices suggests that much information was written on TQM implementation in large manufacturing industries, with little information on its implementation in small and medium size industries. Many investigations have been conducted on the impact of TQM practices on performance of the Small and medium size industries, but only few have investigated the performance of TQM with relationships to small
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There is a consensus in terms of the versatility of TQM implementation in manufacturing industries. That is, there is a need to provide a model which is necessary for both TQM enablers, TQM effectiveness and TQM success in the industry (Pun and Gill, 2002). Among industries that have successfully adopted and implemented TQM practices, certain imperatives have been observed. They include building industrial commitment, customer focus, easy way to measure quality, setting goals and creating incentives, soliciting input from employees, identifying challenges and deal with them, designing for an ease of manufacture and breaking down barriers between functions (Hill and Jones, 1995). The common feature of most TQM practices include leadership commitment, TQM adoption and communication, real supplier relationships, benchmarking, real customer relationships, training and development, openness of organization, empowerment of employees, flexible manufacturing and process improvement measurement (Powel, 1995).

**HYPOTHESES**

Various empirical studies have argued that TQM has a positive impact on the performance of an industry (Ahire and Golhar, 1996; Brah and Lim, 2006). These studies have also argued that TQM industries can outperform non-TQM industries in terms of improved delivery, reduced production costs, increased productivity and quality of products. Commitment by senior management, organizational culture, leadership, continuous improvement, goals and policy, benchmarking, and resources value addition process have an important role to play in the implementation of the TQM (Davis et al., 2003). Therefore, the following two hypotheses were formulated for this study:

**H1:** Implementation of TQM has not contributed to growth in Swaziland sugar industry;

**H2:** Implementation of TQM has not impacted positively on service delivery in Swaziland sugar industry.

**METHODOLOGY**

**Research design**

The approach to methodology used in this study follows Oghojafor et al (2011). Swaziland sugar industry’s quality and efficient system include managers and staff that runs the production of sugar. The industry has grown into a large continental organisation with branches and dealers in all Swaziland. The data for this study were collected using a questionnaire. The questionnaire was drawn to obtain information on the opinion of the employees of the industry’s use of total quality management (TQM), as tool to enhance service delivery.

**TABLE 1 HERE**

A simple random sampling was used to select the study sample. The study sample size comprised a total of 200 employees, and the questionnaire was administered to the respondents by the researcher. Respondents were asked to rate TQM variable together with other items on Likert scale (Table 1). From the administered questionnaires, 176 were returned. A survey research method was used in which variables that related to TQM and quality service delivery were identified and measured.
SPSS was used to analyse the data for which descriptive statistics are presented in Table 1.

**TABLE 2 HERE**

The results in Table 1 also provide the ratings according to respondents’ opinions for reasons of using TQM in sugar industry. It can be argued that variable with the highest rating are those that the TQM was meant to improve. In the present case of this study, they include increased profit margins, improved quality product, improved productivity and enhanced service delivery, while customer satisfaction positions itself at 5th place of the rating. An analysis of both customer satisfaction and performance of the Swaziland’s sugar industry was conducted for which descriptive statistics are presented in Table 2 and Table 3 respectively.

**TABLE 3 HERE**

**Hypotheses Testing**

The test of hypotheses for this study is presented in this section. The Chi-Square (X²) test of association and homogeneity is used with a contingency table.

**H1:** TQM has not enhanced service delivery in Swaziland sugar industry.

**H#1:** TQM has enhanced service delivery in Swaziland sugar industry.

\[ X^2 \text{ from table value} = 23.63 \]
\[ X^2 \text{ calculated value} = 74.48 \]

**Decision**

Given that the value of the \( X^2 \) calculated of 74.48 is greater than the \( X^2 \) value of the table of 23.63, the null hypothesis that TQM has not contributed to organizational growth and performance in Swaziland sugar industry was rejected. The alternative hypothesis that TQM has contributed to organizational growth and performance in Swaziland sugar industry was accepted. This suggests that there is an association/relationship between TQM and organizational growth and performance in Swaziland sugar industry. Table 5 provides the results of the Pearson correlation coefficient of 0.715 between TQM and service delivery in sugar industry which is significant at the \( p>0.001 \). The Pearson correlation of 0.715 is in line with the Chi-Square results.

**TABLE 5 HERE**

**RESULTS AND DISCUSSIONS**

The literature tells us that the total quality management has a positive impact on organizational performance and service delivery. The reasons for using TQM in Swaziland sugar industry according to the respondents resulted in increased profit margins and improved quality products being rated high, followed by improved productivity, enhancement of service delivery, customer satisfaction and lastly, increased product price and increased market share. An analysis of both customer reaction to TQM and performance of the Swaziland sugar industry was satisfactory. Instead of being the primary target of TQM adoption in sugar industry, service delivery was rated 4th on the reasons for adopting TQM while customer satisfaction was rated 5th. The total quality management has impacted positively on
Swaziland sugar industry’s ability to provide services to its customers. The quality of the industry’s products has improved, making it possible to attract more customers as they are satisfied with service and the products. Given that TQM has enhanced sugar industry’s service delivery, customers are satisfied and willing to buy the industry’s products even at a high price. TQM has also impacted positively on the industry’s performance and growth. The profit margins have increased leading to a possibility of an increase in the market share for sugar.

Both alternative hypotheses that TQM has enhanced service delivery in Swaziland sugar industry and that it has contributed to organizational growth and performance in Swaziland sugar industry were all accepted. In line with the TQM literature, the results of this study support the idea that total quality management is a technique that assists firms to perform at a higher level. TQM has been one form of operations management practices which has received great attention in the last two decades. The implementation of TQM has the potential to improve the performance of manufacturing industries in general and customer satisfaction (Jung and Wang, 2006). The implementation of TQM practices is positively correlated with the industry operational performance, but it marginally affects organizational performance (Broetzmann et al., 1995; Choi and Eboch, 1998). Management of the Swaziland sugar industry should be willing to spend resources not only on some factors of production such as capital or machine and raw materials only, but also they should invest on human resources (human capital) as the most important aspect of factor of production. Finally, the results of this study suggest that Swaziland sugar industry primary focus was on increased profit margins and improved quality product. The main focus of TQM implementation is on the customer, satisfaction. When customers are satisfied, then profit margins will increase together with the rest of the main component of the operations.

CONCLUSION

The Swaziland sugar industry plays crucial role in the economy of the country. Its size and performance have had a significant impact, both directly and indirectly on the rest of the country’s economy. A competitive trend in the world of business has called for management of firms and industries to strategise to ensure that services rendered to customers are of high quality with right specification. Customers are economic in nature and as a result they would like to derive better satisfaction on money spent. This has invariably led to the issue of total quality management (TQM) and effective service delivery by sugar industry in Swaziland. Correctly managed TQM towards achieving maximum service delivery is strategically and tactically important for obtaining a competitive advantage in the manufacturing and service industries. TQM has been one form of operations management practices which has received great attention in the last decades. The implementation of TQM has the potential to improve the performance of manufacturing industries in general and customer satisfaction.

The main purpose of this study was to investigate the implementation of TQM practices to promote service delivery in Swaziland’s sugar industry. A questionnaire was used to collect the data used in this study from respondents, who were also employees of the Swaziland’s sugar industry. Data were analysed using statistical techniques for mean and standard deviations. The findings suggested that the reasons for using TQM in Swaziland sugar industry were resulted as follows: (a) increased profit margins and improved quality of products, (b) improved productivity, (c) enhancement of service delivery, (d) customer satisfaction and (e) increased product price and (f) increased market share. Instead of being the primary target of TQM adoption in sugar industry, service delivery was rated 4th on the reasons for adopting TQM, while customer satisfaction was rated 5th. TQM has impacted positively on Swaziland sugar industry’ ability to provide services to its customers. The quality of its products has improved, making it possible to attract more customers as they are satisfied with
service and the products. TQM has enhanced sugar industry’s service delivery and customers are satisfied and willing to buy the industry products even at a high price. TQM has also impacted positively on the industry’s performance and growth. The profit margins have increased leading to a possibility of an increase in the market share for sugar.

Recommendations

The Swaziland sugar industry should not give up implementing TQM because it costs more or for any other reasons. Firms that are not using this technique in the country shout try it because it brings better performance, enhanced service delivery and customer satisfaction. All these result in growth, more profitability and enhance performance. Management should commit itself to TQM program totally when it is planned and implemented. It should always communicate the program effects to the entire members of the organization by informing them its importance, because they are the ones to carry it out for the industry. Finally, employees need to be well trained consistently because technology is continuously changing.

REFERENCES


http://www.nationsencyclopedia.com/Africa/Swaziland-INDUSTRY.html


APPENDIX

Table 1: Reasons for using Total Quality Management in Swaziland’s sugar industry, 2013

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Mean</th>
<th>Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased profit margins</td>
<td>6.083</td>
<td>2.8704</td>
</tr>
<tr>
<td>Improved productivity</td>
<td>4.854</td>
<td>1.1138</td>
</tr>
<tr>
<td>Enhanced service delivery</td>
<td>4.440</td>
<td>1.7912</td>
</tr>
<tr>
<td>Improved quality product</td>
<td>6.482</td>
<td>2.6517</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>3.576</td>
<td>1.9604</td>
</tr>
<tr>
<td>Increased product price</td>
<td>2.747</td>
<td>1.9233</td>
</tr>
<tr>
<td>Increased market share</td>
<td>2.818</td>
<td>1.8670</td>
</tr>
</tbody>
</table>

Source: Research data, 2013.

Table 2: Descriptive statistics of customer reaction to TQM, Swaziland sugar industry, 2013

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQM boosted our industry’s service delivery.</td>
<td>5.42</td>
<td>0.76</td>
<td>0.862</td>
<td>1.463</td>
</tr>
<tr>
<td>Our customers are prepared to buy our products at higher price given it high quality.</td>
<td>4.67</td>
<td>0.74</td>
<td>-0.231</td>
<td>-0.527</td>
</tr>
<tr>
<td>Given the quality of our products our customers are satisfied with services.</td>
<td>4.52</td>
<td>0.55</td>
<td>-0.532</td>
<td>-0.581</td>
</tr>
<tr>
<td>The industry’s quality products helps us to attract more customers.</td>
<td>3.78</td>
<td>1.42</td>
<td>-0.984</td>
<td>-0.423</td>
</tr>
</tbody>
</table>

Table 3: Descriptive statistics of the performance of the Swaziland sugar industry, 2013

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQM practices have promoted growth in the sugar industry.</td>
<td>5.68</td>
<td>0.63</td>
<td>0.179</td>
<td>0.759</td>
</tr>
<tr>
<td>Quality products and better services have contributed to increased profit margins.</td>
<td>5.38</td>
<td>0.68</td>
<td>0.482</td>
<td>0.714</td>
</tr>
<tr>
<td>Sugar market share has increased locally and regionally.</td>
<td>5.63</td>
<td>0.98</td>
<td>-0.973</td>
<td>-0.926</td>
</tr>
<tr>
<td>TQM has increased the industry’s performance.</td>
<td>5.13</td>
<td>0.71</td>
<td>0.128</td>
<td>0.787</td>
</tr>
</tbody>
</table>
### Table 4: Chi-Square Test Statistic

<table>
<thead>
<tr>
<th></th>
<th>TQM</th>
<th>Service delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square (a,b)</td>
<td>107.700</td>
<td>79.034</td>
</tr>
<tr>
<td>Df</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Asymp. Sig</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

(i) cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

(ii) cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 11.3.

### Table 5: Correlation table

<table>
<thead>
<tr>
<th></th>
<th>TQM</th>
<th>Service delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQM</td>
<td>1.000</td>
<td>0.715(***</td>
</tr>
<tr>
<td>Service Delivery</td>
<td>0.715(***</td>
<td>1.000</td>
</tr>
<tr>
<td>*** Correlation</td>
<td>significant at 0.001 level</td>
<td></td>
</tr>
</tbody>
</table>

*** Correlation significant at 0.001 level