



Kaizen Principle Of Constant Improvement: Could This Reengineer The Competitiveness Of Kenya's Manufacturing Sector?

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Abstract

Kenya is an emerging economy averagely industrialized with manufacturing at the core contributing significantly to the Kenyan economy. Manufacturing has then been made Big Four Agendas industrialization component. However, quality concerns are traced down the value chain hamper the Kenyan manufacturing sector competitiveness. Evidently, firms need to create public confidence regarding quality systems. Kenya has neither national culture nor a long state coordinated manufacturing history so this poses a challenge. Further, while the manufacturing sector subscribes to several standards, certifications and quality management systems, these do not prescribe constant improvement as the Kaizen principles. The impact of the Kaizen principle of constant improvement pertaining competitiveness of Kenya's manufacturing sector is examined. The study revealed lack of reinforcing quality culture despite subscribing to quality standards resulting to none adherence to quality standards. Recommendation is the need to mainstream Kaizen constant improvement philosophy as manufacturing culture to improve global competitiveness.

Keywords: Kaizen, constant improvement, competitiveness, manufacturing sector, quality culture

1.0 Introduction

1.1 Background of the study

The manufacturing sector in Sub-Saharan Africa is generally not dominant economically compared to the agricultural and service sectors, Kenya is no exception. In 2007, the contribution to GDP of the manufacturing sector in Kenya was 11.8 percent, whereas the agriculture and the service sectors accounted for 22.7 percent and 58.2 percent, respectively (World Bank, 2009). There are about 2000 fragmented manufacturing units in Kenya according to the Kenya vision 2030 reported of 2007 (Kenya National Bureau of Statistics (KNBS), 2012) with the Kenya Association of Manufacturers (KAM) membership comprise of 700 members. This sector is quite diversified and comprises of all products which in other terms are referred to as non-agricultural products as well products from agro-processing industries. Consequently, the manufacturing and industry were made into pillars of Kenya Vision 2030 and is one of the Big Four Agendas; these two must be emphasized to support the populations' human needs and also provide materials for most of the development projects set in the vision 2030. Manufacturing makes an important contribution to the Kenyan economy and currently employs about 254,000 people, which represents 13 per cent of total employment in Kenya. An additional 1.4 million people are employed in the informal side of the industry. The sector is highly fragmented with more than 2,000 manufacturing units (KNBS, 2016).



Kenya is an emerging economy that is averagely industrialized. It has a large manufacturing sector serving both the local market and exports mostly to the East African region (Otuki, 2016). Industrialization and manufacturing cut through most of the ministries of the Kenyan government and affects all Kenyans. Industrialization and manufacturing contribute to approximately 10% of the Gross Domestic Product of Kenya per year (Kenya Engineer, 2014). Consequently, it is the real engine of economic growth in Kenya. Industrialization is the process in which a society transforms itself from a primarily agricultural society into one based on industry and the manufacturing of goods and services. Industry is the production of an economic good or service within an economy. Manufacturing, however, is to make or process raw materials, especially in large quantities and by means of an industrial process (Were, 2016). Therefore, manufacturing can be regarded as the core driver of the industrialization process and, hence, it is important that it be made competitive enough for the country and sector players to make considerable gains. One of the key competitive elements in the industry is quality.

1.1.1 Quality and Competitiveness of the Manufacturing Sector

Quality has developed into the most competitive weapon, and many organizations have realized that Total Quality Management is the new way of managing for the future. Quality is a competitive advantage but it does not just happen, it has to be managed (Nyambura, 2015). It is also an underlying factor for many other sources of competitive advantage. Successful ventures offer consistent quality, so an important consideration for any venture is how quality is going to be perceived and measured. In some cases, quality may be related to value-added strategies, such as obtaining third party certification; in other cases, quality may be related to the fact that the product being offered is of a higher physical quality than the competitor's product, or from providing excellent customer service (Cole, 2008).

Recent developments in the manufacturing in Kenya have exposed quality issues that threatens the growth prospects of its industrialization if left unaddressed and holds promised if well resolved. These underline the need for a strong quality culture in manufacturing that that at the moment is not anchored in the industrialization drive (Transparency International, 2016). It should be mentioned that a finished product can only be as good as the inputs that go into its production, including the raw materials used to for its manufacture. Quality problems can be addressed through several quality management approaches. By utilizing quality improvement practices and systems that have been proven to reduce the incidents of defective products across many industries. One of the fundamental principles in manufacturing quality products is that quality cannot be tested into a product – quality instead, must be built into a product by design. Examples of quality improvement practices include quality risk management, six sigma, and lean manufacturing. The present study focuses on the lean manufacturing processes premised on the Japanese Kaizen Continuous Improvement Approach.

The absence of what may correctly be seen as an “Industrialization Culture” in Kenya has inhibited growth and innovation in the sector. From a historical perspective there has hardly been any effort in locating national industrialization as a necessary and important political decision to be made at the highest level. Examples from other countries indicate how decisive political decisions led many countries to pursue extremely rewarding Industrialization policies. Japan for



instance took the political decision in the 1960s and despite having no minerals, including oil, has proved to be a manufacturing powerhouse and an immense economy. In the US, the concept of total quality management (TQM) philosophy and its principles was introduced around 1980, primarily in response to the severe competitive challenge from Japanese companies (Prajogo, 2005). In general, TQM has been credited in providing benefits for the organizations that implement it properly especially those in the manufacturing sector. However, unlike Kaizen, TQM is not culturally embedded and while it helps set standards, it does not prescribe constant improvement.

1.1.2 Kaizen

Kaizen is an approach to creating continuous improvement based on the idea that small, ongoing positive changes can reap major improvements. Typically, it is based on cooperation and commitment and stands in contrast to approaches that use radical changes or top-down edicts to achieve transformation (Carnerud, Jaca&Bäckström (2018). Kaizen is core to lean manufacturing. It was developed in the manufacturing sector to lower defects, eliminate waste, boost productivity, encourage worker purpose and accountability, and promote innovation. As a broad concept that carries myriad interpretations, it has been adopted in many other industries, including healthcare. It can be applied to any area of business, and even to personal life. Kaizen can use a number of approaches and tools, such as value stream mapping, which documents, analyzes and improves information or material flows required to produce a product or service, and Total Quality Management (TQM), a management framework that enlists workers at all levels to focus on quality improvements (Singh & Singh, 2018). Regardless of methodology, in an organizational setting, the successful use of Kaizen rests on gaining support for the approach across the organization, and from the CEO down.

Studies that have focused on Japanese manufacturing techniques had all illustrated the importance of kaizen in the improvement of organizational performance (Liker, 2004; Emiliani, Stec, Grasso & Stodder, 2007). Manufacturing Operational performance management was characterized by four key distinct performance dimensions which included; cost/productivity, time/speed, operations flexibility and quality. Others included creativity, innovation and customer satisfaction (Bodek, 2010). These four distinct classes of performance dimension coincided with the four basic components of cost, quality, speed and flexibility by which the manufacturing strategy of a firm is generally expressed (Akter, Yasmin & Ferdousc, 2015). These manufacturing performance dimensions determined the market competition focused on “price”, “product” and “place” (Kumar, Dhingra& Singh, 2017).

1.2 Problem statement

Kenya as a country is struggling to make steps towards the achievement of vision 2030 which is a blueprint that guides Kenya to become an industrialized nation by then. However, there are several factors that are hampering the attainment of industrialization and competitiveness of the manufacturing sector in Kenya, such as; stiff competition where many local industries that are struggling to grow face competition from the foreign industries that produce similar goods which are cheaper and are regarded as having superior quality over local



goods. Therefore, imported goods are always in demand. Further, the rising levels of poverty coupled with the general slowdown of the economy has continued to inhibit growth in the demand of locally manufactured goods, as effective demand continues to shift more in favor of relatively cheaper imported manufactured items. Goods manufactured elsewhere have also served to deter the stimulation of local industries. In addition, the high cost of inputs as a result of poor infrastructure has led to high prices of locally manufactured products thereby limiting their competitiveness in the regional markets and hampering the sector's capacity utilization. Another recent concern is the discovery of unfit consumables especially foodstuffs, and that resulted in recalls and censure of product outlets. This raised serious quality concerns that can be traced down the value chain into the basic sourcing, handling, procuring and value addition processes.

In a country which has made increase manufacturing one of its main development goals, product recalls do not further this objective. Product recalls mean losses. A manufacturer not only incurs recall and disposal costs of material inventory (finished goods and raw materials), but manufacturing of the recalled product has to cease until the quality problem is resolved. The manufacturer's brand value takes a hit, and in severe cases declines in the business due to diminished product sales and may lead to job losses. Further, the government will experience a drop in tax revenues if company revenues decline. Therefore, Kenyans should be made to change this perspective if the local industries are expected to grow. However, the manufacturing firms need to create confidence in the public regarding their quality systems. For a country that does not have a national culture or a long state coordinated manufacturing history, this may be a challenge. Further, while the manufacturing sector currently subscribes to several standards, certifications and quality management systems, most of these do not prescribe constant improvement approaches such as Kaizen. The current paper, therefore, explores the effect of adopting the Kaizen approach on the competitiveness of the manufacturing sector in the country.

1.3. Objective of the Study

The objective of the paper is to examine the impact of the Kaizen principle of constant improvement on the competitiveness of Kenya's manufacturing sector

2.0 Literature Review

2.1 Kaizen Model in Manufacturing

The term "kaizen" is a derivative of two Japanese ideograms, "kai," meaning change, and "zen," meaning good or for the better (Six Sigma LLC, 2004). Another definition of the Japanese meaning of kaizen is "to take apart and put back together in a better way" (Grabau & Joe, 2012). The popular meaning is continual, incremental improvement of all aspects of a company (Imai, 1986). Kaizen is the Japanese word for improvement or "change for the better" carrying the connotation in industry of all the activities which took place in the Japanese workplace to enhance the operations and environment. The phrase "change for the better" implied any change that resulted in improvement which could be quality or other factors that customers or an



organization judged to be of value such as innovation, ease of use, on time delivery, durability, operations flexibility customer satisfaction and low cost (Bodek, 2010).

Kaizen events attempted to impact business performance as well as human resource outcomes. Reported business performance improvements resulting from kaizen events appeared to vary from moderate improvement (25-50 per cent), to significant improvement (75-100 per cent) to orders of magnitude improvement (greater than 100 per cent) (Maurer, 2012). Kaizen events that generated short term performance improvements had provided impetus that the organizational change literature purported was necessary for creating employee commitment to a given performance improvement strategy (Scotchmer, 2008). Some of the purported human resource outcomes of kaizen event are increased employee knowledge of the need for improvement in the organization (Hamel, 2010), increased employee knowledge of the principles, tools, techniques of continuous improvement, development of problem solving skills (Carnerud et al., 2018), promoted teamwork in an organization, proficiency in lean manufacturing tools (Mika ,2002).

2.2 Empirical review

Kenya is one of the most diversified economies in Africa and of which the manufacturing sector plays a very important part. It is one of the leading manufacturing powerhouses in Sub Sahara Africa (with the exception of South Africa) and comes second to Nigeria in terms of manufacturing exports expressed in billions of USDs (World Bank, 2016). In terms of regional comparison, with other East African countries, Kenya has the largest and most sophisticated manufacturing sector (Overseas Development Institute, 2016). However, there is an appreciation of the fact, although the manufacturing sector in Kenya is the largest, in terms of growth trends other countries in East Africa are growing much faster and there is concern that if this trend continues, other East African countries will begin to dominate manufacturing in the region (African Development Bank (AfDB), 2014). While Kenya remains an attractive investment destination for manufacturing, other countries are aggressively courting such investment. Therefore, for the country to reposition itself competitively as it must get its manufacturing act right and needs to be more straightforward in terms of process and ethical issues.

The manufacturing sector in Kenya grew at 3.5% in 2015 and 3.2% in 2014, contributing 10.3% to gross domestic product (GDP) (KNBS, 2016). On average, however, manufacturing has been growing at a slower rate than the economy, which expanded by 5.6% in 2015. This implies that the share of manufacturing in GDP has been reducing over time. As a result, it can be argued that Kenya is going through premature de-industrialization in a context where manufacturing and industry are still relatively under-developed. Kenya seems to have ‘peaked’ at a point much lower than in much of Asia. The manufacturing sector real value added rose by 0.2 per cent in 2017 compared to a growth of 2.7 per cent in 2016. Output volume of the sector however, declined by 1.1 per cent mainly on account of reduced production of food products, beverages and tobacco, leather and related products, rubber and plastics and non-metallic minerals sub sectors. The sector’s formal employment rose to 303.3 thousand persons in 2017 and accounted for 11.4 per cent of the total formal employment. The number of local employees engaged by EPZ enterprises increased to 54,622 persons in 2017 from 52,947 persons in 2016. Loans advanced to the sector rose to Kshs. 311.8 billion in 2017 from Kshs. 275.8 billion in 2016. The Producer Price Index (PPI), which measures inflation of products as they leave the



factories, increased by 4.6 per cent in 2017 mainly due to increase in prices of manufactured food products, electricity and manufactured basic metals (KNBS, 2018).

One of the major challenges emerging in the sector is quality. Although public procurement has a 40% local content requirement under the Public Procurement and Disposal Act, this is often not adhered to. Indeed, with regard to the Standard Gauge Railway, there was an issue in 2015 where the contractor was not meeting local content obligations in the construction of the railway line, arguing that goods and services did not meet the approved quality threshold (TI, 2016). Although this issue has since been resolved, the sector continues to fail to fully benefit from local content requirements in public procurement, because local goods can be dismissed on the basis of quality concerns. As there is no clear feedback mechanism between public procurement structures and manufacturers, there is no means for relevant subsectors to improve product quality. There is a need to enforce local content requirements and create feedback loops so quality issues can be addressed.

Further, recent reports of aflatoxin contaminated peanut butter products are of major concern as they relate to how the issue of product quality is addressed by manufacturers in the country. While regulatory authorities have acted to remove the contaminated products from the market, recalls are only the first step in addressing this issue. This is because some very important questions have not been addressed – specifically how were contaminated peanut butter products manufactured and released for distribution to the public without the contamination being detected or anticipated by the manufacturers? (Nyamweya, 2019). ‘Anticipated’ because given the manufacturer’s knowledge of the product, its potential for aflatoxin contamination, and the probable shipping and storage conditions of the finished product – was there any known possibility of aflatoxin levels increasing in manufactured peanut butter after packaging and during distribution to customers? (Kandie, 2019). The answers to these questions not only provide the basis for preventing contamination issues from happening again, but also give an opportunity for manufacturers to review how they address and make improvements in product quality. It should be mentioned that a finished product can only be as good as the inputs that go into its production, including the raw materials used to for its manufacture.

How can manufacturers address these quality concerns? By utilizing quality improvement practices and systems that have been proven to reduce the incidents of defective products across many industries (Nyamweya, 2019). Quality improvement techniques require thoroughly investigating the root cause of any problem that occurs in the manufacturing process and then identifying corrective and preventative actions to prevent the problem from reoccurring. Contaminated, sub-standard or otherwise defective products arise from a lack of control by a manufacturer over of one or more of the “6Ms”: 1) man (the people involved in manufacturing a product); 2) materials (the components or ingredients used to make to the product); 3) machines (the equipment used to manufacture and package the product); 4) methods (the procedures used to manufacture and package the product); 5) measurements (the tests performed on the product to assess its quality); and 6) mother nature (the environmental conditions, for example the temperature and humidity in which a product is stored) (Nyambura, 2015).



In Kenya, reports indicated that kaizen interventions have often resulted in 50-70% reductions in through-put time, 50-100% increases in productivity, 20-40% savings in manufacturing costs, 40-60% reductions in quality errors, and 50% releases of space, as well as significant improvements in team spirit and morale (Kenya Association of Manufacturers, 2012). In general, Kaizen provides the channel through which employees contribute to the development of their company. However, this is limited to only the few companies that have adopted the principle.

4. Results findings

The findings of the present study reveal that customers are increasingly demanding for Certified QMS. Overall the study found that although there is awareness on the part of organizations with respect to Quality Management Systems and procedures, however a lot needs to be done when it comes to the actual adherence to the Quality Principles. The findings revealed that very few manufacturing firm employees considered quality as the responsibility of everyone in the organization, which is alarming and calls for change in the culture of organizations. Further, the findings revealed that quality checking practices were considered as a joint responsibility of quality & production functions. While production people were free to interact with top management and are also empowered to stop the production line for any quality related issues, they were not encouraged to interact freely with suppliers and customers. Further, despite the production people being given a freehand to stop the line for any Quality related issue, Quality Trainings were largely ignored.

The most used forms of Quality Control were supervisions and inspections. Using five typical case studies the study revealed that Quality Management concepts are not known let alone practiced. The study concluded that Quality Management on sites does exist but in the very traditional form and that very few people understand the concept of Quality Management as applied in manufacturing. Further, many believe Quality is unattainable without inspections and supervisions. As such, the human factor plays a significant role in achieving quality. They recommended the starting point to achieving quality as the human element i.e. workers, supervisors, designers and even clients themselves. There is need of ingraining into people the fact that it is possible to do work right the first time even without supervision.

Evidently, though this study suggests that there was subscription to quality systems, there appears to have been a lack of reinforcing quality culture which made the quality standards not to be adhered to. On quality management systems in operation and their influence on coffee quality in small scale coffee sub-sector in Kenya. The findings revealed that the small scale subsector is majorly using internal quality management systems and ISO9001:2008 quality management system. However, the extent of adoption of the quality management systems is very minimal. Further, the findings indicated a strong relationship between the extent of adoption of the quality management system, various quality management systems and coffee quality. There was no commitment to using QMS in achieving quality. Subsequently, more sensitization on the potential impact of QMS on quality should be done in the manufacturing sector.

This paper further found that sustainability of kaizen practices in Kenyan manufacturing firms is significantly related to operational performance. This study has provided insights into the extent of sustainability of kaizen in Kenyan manufacturing firms, and provides further evidence



that kaizen sustainability is fundamental in adding value on operational performance. On Kaizen sustainability and operational performance of manufacturing firms in Mombasa County, Kenya, the kaizen practices had varying degrees of sustainability in Kenyan manufacturing firms with the aspect of improved maintenance practices having the greatest extent of sustainability and aspect of lower inventory levels having the least extent of sustainability. On challenges faced in kaizen implementation, lack of management support, ineffective training and lack of proper communication about kaizen posed the greatest challenge whereas employees' commitments and innovativeness, financial constraints posed the least challenge.

5. Conclusions and Recommendations

5.1 Conclusions

The findings of this paper brought to light the status of the manufacturing industry in the country with regard to quality concerns. While the manufacturing sector is still vibrant and retains its leading position in the region and beyond in Sub Saharan Africa, there are already indications that these fortunes could change given the pace at which other countries in the region-especially in the East African region are gearing up their systems for more investment in manufacturing. While several determinants have to be put in place vis-à-vis our competitors, one of the key issues that will have to be addressed is the quality concerns in order for the sector to be competitive both within the country and also in the export markets. From the case studies reviewed, it is evident that quality standards are scarcely known and adhered to and this is a matter of serious concern in this era of globalization, market liberalization and intense competition. The study revealed while there was subscription to quality standards, there was lack of reinforcing quality culture which made the quality standards not to be adhered to. The paper also finds that lack of an "Industrial Culture" in Kenya has inhibited growth and innovation in the sector. The paper, further, submits that it is important to embed the Kaizen quality culture of constant improvement into all the manufacturing processes so as to not only avoid serious setbacks such as those that arose from the quality gaffes but to spur the sector into global competitiveness.

5.2 Recommendations

The paper, therefore, recommends that there is need to create a "National Industrial Culture" to drive the industrialization process of which manufacturing is a key sector. The paper further observes that there is need to mainstream the Kaizen constant improvement philosophy as a manufacturing culture to improve our global competitiveness. It is also important to inculcate these two cultural approaches into the education system so as to create more consciousness of quality imperatives to the citizens. This is also informed by the consideration that quality does not just begin at the manufacturing shop floor, but right down the value chain and as such, the citizens contribute in one way or another to the ultimate quality of the manufactured goods.

Future studies should focus on the factors affecting adoption of quality cultures in the manufacturing sector in Kenya. Studies should also be done on the effect of policy frameworks in reinforcing quality culture in the manufacturing sector.

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