

Review Article

Product Development and Process Improvement in Small and Medium Food Manufacturing Firms in Nairobi City County, Kenya

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Abstract - This study investigated product development and process improvement for Small and Medium food manufacturing firms in Nairobi, Kenya, considering that the country's manufacturing output has stagnated at about USD 5 billion for over ten years, and the current proposal to support the sector to increase its G.D.P. share to 15% by the year 2022. Data were collected from 56 management staff. Mean responses received on a Likert scale of 1 – 5 for each tested item were calculated for all the respondents. The results show a significant difference in firms' level of performance on various product improvement imperatives. To establish the level of firm performance about the tested items, a one-way analysis of variance was conducted on the mean response on the data collection items. A mean response at 3.31 and a standard deviation at 0.80 were established. The study recommends that all the product development processes within the sampled firms be reengineered to undertake a quality improvement journey because their current methods seem inadequate to attain and sustain high quality in a competitive business environment. This study is useful in progressing knowledge and designing policies to enhance the competitiveness of food manufacturing S.M.E.s in support of Kenya's big four agenda and vision 2030.

Keywords - Product Development, Process Improvement, S.M.E.s, Quality, Food Processing, Competitiveness.

I. INTRODUCTION

It is now widely accepted that Small and Medium Enterprises (S.M.E.s) make a significant contribution to employment generation, income distribution, and poverty alleviation (Banjoko, Iwuji & Bagshaw, 2012; Hu, Zheng & Wang, 2011). In Kenya, S.M.E.s has been cited as an important ingredient towards industrial transformation and realizing Kenya's vision 2030 (RoK, 2013). Despite this, the trend in the world today is the continued internationalization of commerce in goods and services resulting in a complex and hyper-competitive business environment (McKenzie, 2011; McKinsey, 2010). New markets continue to emerge while at the same time consumer tastes and service preferences have continued to

change hence further compounding the needed reconfiguration of resources to achieve sustainable competitive advantage, especially for firms in the S.M.E. space (Liesch, Buckley, Simonin & Knight, 2012). The performance of S.M.E.s, the constraints they face, and the policies the government can pursue or change to make the business environment more accommodative to these enterprises are important issues to investigate.

One area of considerable importance to product end-users, thereby weakening or strengthening the survival possibilities of business enterprises, is product quality available to the consumers (Sinha, Akoorie, Ding & Wu, 2011; Khrystyna *et al.*, 2010). Availability of similar or substitute products gives end-users consumption options, thus raising their expectations on product quality and reliability (Corwin & Puckett, 2009; Mead & Liedholm, 1998). Production of quality products that meet the users' needs is no longer optional but a core requirement in the battle for competitive positioning in the marketplace (Bos-brouwers, 2010; Mead & Liedholm, 1998).

Hitherto, most studies worldwide have been mostly about the informal sector and large-scale enterprises (Sinha, Akoorie, Ding, and Wu, 2011). In addition, previous surveys on S.M.E.s, particularly in the less developed countries including Kenya, have revealed that a third of these enterprises failed in the same year they became operational, as well as additional failures or closures of firms started in previous years (Khrystyna, Mirmulstein & Ramalho, 2010; Al-Shaikh, 1998; Mead & Liedholm, 1998). To check this trend and put in place appropriate mitigation measures, the Government of Kenya and other stakeholders continue to look for contributions in the following aspects:

First, since the termination of the command economy and the commencement of the market economy in the early 1990s, the competitiveness of S.M.E.s is an important issue considering their actual and potential contribution to the national economy. How competitive S.M.E.s need to be known and well understood to aid in formulating



support programs that can best facilitate the growth of the small and medium enterprise sector in general (Wang, 2014).

Secondly, products produced by S.M.E.s compete against those by larger enterprises from the local and international markets. S.M.E. products are largely perceived to be inferior in quality compared to those produced by large enterprises. Therefore, it is important to find out the performance of S.M.E.s on product development and process improvement to indicate the quality and efficiency scope that may lay ahead and facilitate the design and operationalization of appropriate mechanisms to address the situation.

Lastly, the need to promote and support S.M.E.s has generally been recognized in Kenya since the 1970s following the 1972 I.L.O's paper highlighting the importance of this sector. The government of Kenya has since then made explicit commitments to this sector's development in a series of sessional papers (Nos. 1 of 1986; 2 of 1992, 2 of 1996), the National Development Plan (RoK, 1986; 1992; 1996; 1997), and Kenya's vision 2030 (RoK, 2013). Against this background, the current study sought to examine product development and process improvement practices for food manufacturing S.M.E.s in support of Kenya's big four agenda and vision 2030.

II. MATERIALS AND METHODS

The study adopted a descriptive design to obtain data concerning the current status concerning the identified variables arising from an extensive review of relevant literature (Creswell, 2011). The unit of analysis for this study was S.M.E.s with an employment level of between ten (10) and two hundred persons (200). The chosen S.M.E.s were from the food substrata in the manufacturing or value addition sector. The employment level of between 10 and 200 was arrived at considering the definition of micro and small enterprises provided for in the M.S.E. Act of 2012 (RoK, 2012) and also the definition by the European Economic and Social Committee.

Nairobi City County in Kenya was chosen because it is the regional business hub and because over 80 percent of the manufacturing or value addition enterprises across the board are based there (K.A.M., 2019). The manufacturing sector was chosen because of its critical role in Kenya's industrialization and because its output is often traded in local, regional, and international markets than service output. Manufacturing firms are also more likely to be in direct competition with foreign firms attempting to develop substitute technology using similar processes and targeting the same customers. Moreover, the industrial sector in Kenya comprises manufacturing, quarrying and mining, and construction activities, out of which the manufacturing activities account for the greatest share. In addition, industrialization (which includes manufacturing) has been hailed as the "engine for growth" for newly emerging economies in the world, and that is why the

Kenya Government recognizes this as a core goal to the attainment of vision 2030 (RoK, 2013).

The unit of analysis was seventy (70) food manufacturing firms, while the Chief Executive Officers, General Managers, or Senior Management Executives in charge of production/operations of the chosen S.M.E.s were the unit of observation. The observation unit was identified because they would be in a better position to respond to questions touching on the issues under investigation in their respective enterprises. A Sampling Frame was prepared as per the list obtained from the Kenya Association of Manufacturers' directorate and the licensing department of the Nairobi City County Government. This was done to ensure the inclusion of legal business only.

Out of the seventy (70) food processing firms, only 61 are located or have offices within Nairobi City County. The firms were then classified into four (4) clusters based on employment levels of 10 – 50; 51 - 100; 101-150; and 151-200. This was done to ensure that the whole population was evenly covered to avoid biased representation (Hunter & Schmidt, 2004; Oslo Manual, 2007). In addition, this method was deemed useful in three ways. First, it was conceived that each stratum would be homogenous internally but heterogeneous with other population strata. Secondly, stratification would be useful if there was going to be a need to study the characteristics of certain sub-groups. Lastly, it was useful for applying different data collection methods were necessary for the different parts of the population (Saldana, 2011).

Using Krejcie and Morgan's (1970) table of determining sample size, 59 is the actual number of firms required to form a representative sample out of a population of 70. The applicable formula is $s = X^2 N.P.(1-P) \div d^2 (N-1) + X^2 P(1-P)$, at a confidence level of 95% and a margin of error of plus or minus 5%, where:

- s = required sample size.
- X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).
- N = the population size.
- P = the population proportion (assumed to be .50 since this would provide the maximum sample size).
- D = the degree of accuracy expressed as a proportion (.05).

Having determined the required sample size to be 59 S.M.E.s out of 70 firms, it was found prudent to add additional enterprises to cover for possible respondents' nonresponses and increase the reliability of the findings. The residue S.M.E.s eleven (11), though five (5) had already been used during the pilot study, thus unavailable

for inclusion. Since the remaining six (6) firms were judged not to be many, it was found wise to include them in the study to act as a buffer zone for possible nonresponses. As a result, sixty-five (65) S.M.E.s were included in the study, thus making it unnecessary to establish the sampling fraction. The collected data was analyzed using descriptive statistics.

III. REVIEW OF RELEVANT LITERATURE

A. Product Development

The ultimate objective of product development and improvement is to have a product that meets or exceeds the customer's requirements. This is similar to the underlying philosophy behind Total Quality Management, which seeks to have a product conform to some set specification, hence fitness for use by customers. However, the challenge is that customers increasingly demand both innovation and value (Bos-brouwers, 2010). Thus, as the value placed on new product designs and concepts continues to grow relative to the value placed on standard products, the need to make adjustments on the existing product improvement processes will also continue to surge (Rauch *et al.*, 2009). This means that the ability to develop new products of high quality and low cost that meet customer expectations is essential for continued profitability and global competitiveness (Lunati, 2007; Prajogo&Sohal, 2006). From this observation, one can deduce that the opposite is true, meaning that if an S.M.E. cannot satisfy customer demand and gain market share, it cannot be profitable. If not profitable in the long term, then it cannot survive, and its customers plus all the jobs it provides would be lost to the competition (Banjoko, Iwuji&Bagshaw, 2012). This calls for resolving principal weaknesses hampering the MSMEs' product development capability, especially in technological weaknesses (Bos-brouwers, 2010).

The forces fueling globalization create new production and market structure (Jara&Escaith, 2012). As noted previously, the process of globalization has brought with it the need for increased competitiveness at the level of the individual enterprise. The form this takes in each enterprise varies. As observed by Brinkmsnet *et al.*, (2010), response to competitive pressures could be based on quality and innovation, low-cost considerations, flexibility, technical capability, and enhanced customer value in terms of product differentiation, quality, speed, service, and price (Hu, Zheng& Wang, 2011; Singh & Smith, 2004). In this case, the process of innovation encompasses new and significantly improved production technology, enhanced methods of supplying services, and delivering products. The outcome should be significant concerning the output level, quality of products, or production and distribution costs.

Innovations and new product development are a natural response to a changing consumer market. Enterprises are constantly devising innovative strategies to gain a competitive edge in the market (Corwin & Puckett, 2009). Innovation involves various activities throughout the value chain from design to delivery, including after-

sales service, for purposes of meeting or exceeding customer expectations (Bigliardiet *al.*, 2011; Singh & Smith, 2004). The essence is to promote and institutionalize innovations within the organization to enhance competitiveness. Policies and action plans to introduce new products, services, and other forms of innovation are targeted. The ultimate goal is to have a new or significantly improved product (good or service) introduced to the market (Corwin & Puckett, 2009). The improvements should be concerning its fundamental characteristics, technical specifications, intended uses, or user-friendliness (Callahan, Smith & Spencer, 2013). The innovation is based on the results of new technological developments, new combinations of existing technology or utilization of other knowledge acquired by the enterprise through customer feedback management programs (Singh & Smith, 2004)

Given the advancement in international communication, increased access to knowledge and information, and the widened integration of markets has increased competitiveness. Enterprises have the freedom to design products in one country, manufacture in another, purchase materials from others, and deliver to customers all over the world (Sinha *et al.*, 2011). The decision is guided by economic conditions, available skills, and other advantages offered by different countries. However, goods produced regardless of efficient levels and cannot be sold or are not required by customers indicate low productivity (Corwin & Puckett, 2009; Kotler, 2007). Products to be availed in the market must be designed and produced to satisfy customer requirements for reliability, durability, price, and delivery. To achieve customer satisfaction, the first task is to understand customer expectations and to lay down the basic parameters of the products or services to be provided, considering the competitors' benchmarks (Kotler, 2007). Hence, the product development process must start with understanding who the customers are, their needs, why and how they use a particular product, and what price they are prepared to pay for the same (Singh & Smith, 2004). Otherwise, any notion of productivity unrelated to the customer is meaningless.

However, the improved information technologies have brought challenges and opportunities to the enterprise as it seeks to identify and meet the needs of the customer. The improved technologies have resulted in a volatile and dynamic marketplace and very discriminating customers demanding more product differentiation and specialization (Callahan *et al.*, 2013; Singh & Smith, 2004). With more discerning and demanding customers with continuously changing tastes and preferences, enterprises have realized the importance of increasing their customer orientation. Moreover, the current environment is full of competitors providing substitute products. The imperative is to be responsive to customer needs and make the whole organizational process supportive of this mission through continuous innovation and process improvement (Corwin & Puckett, 2009; Singh & Smith, 2004).

Successful innovation and product development require non-discrimination of people within the enterprise (Armstrong, 2006). This means that anyone in an organization can have a viable idea for a new and profitable product, not just one of the managers. This motivation for new product ideas comes from watching the market change. Thus, those employees most directly involved with customers, such as sales and service staff, should provide periodic feedback on how existing products are performing in the market, including what customers have to say about them. The marketing staff can conduct periodic customer surveys or bring in focus groups to get a sense of where the market is heading and what new features customers want (Corwin & Puckett, 2009).

This observation has been supported through empirical research. Several studies have concluded that it is cost-effective to focus on the critical enterprise–customer channel, which strongly impacts customer satisfaction and organizational performance (Brinkmsnn, Grinchnik&Kapsa, 2010; Singh & Smith, 2004). To optimize the benefits of this interaction, the firm encourages its customers to make contact and develop a feedback management system to harness its inputs into its production process. Encouraging the customers to get in touch can help the enterprise second guess problems and provide the marketing and sales team with the right information before escalating. As a result, the enterprise can implement customer-led service and improve innovation (Corwin & Puckett, 2009). Other powerful gains encompass innovation and new product development, improved cycle time, improvements in customer responsiveness, and overall improved productivity.

Therefore, the general agreement is that customer feedback is the richest source of up-to-the-minute information for any enterprise, whether it is the packaging defects, faulty product, wrong color, or a refreshing change (Brinkmsnn, Grinchnik&Kapsa, 2010). Recording this feedback and using it to satisfy demands is a recipe for meeting customer needs and a step forward in innovating and providing quality servicing. The feedback gathered through the enterprise-customer interactions assists the firm in developing various programs, including varying supportive policies and enhancing process innovation (Kotler, 2007; Singh & Smith, 2004). Thus, sustained positive action on continued customer feedback enhances innovation, new product development, and enterprise performance. Therefore, an enterprise must have the flexibility and competence to cater to the current dynamic and globalized market for competitive advantage (Brinkmsnnet *al.*, 2010).

B. Process Improvement

Process improvement as a factor of competitiveness is somehow related to TQM and Product Development and Improvement in the sense that there can be no meaningful change to one of the factors without similar changes in the other two (Jara&Escaith, 2012; Ghobadian&Gallear,

1996). The three also essentially take an incremental approach to bring about enterprise improvements. Those engaged in a process are highly involved in identifying improvements continually and incrementally (McCarthy &Greatbanks, 2006). The three are also similar in recognizing the necessity to make fundamental changes to business unit culture and build in performance measurements and benchmarking as an inherent aspect of a process to be able to track future performance in each of them (Tuan & Yoshi, 2010). However, the difference is in the involvement of those from inside the process and the scope of their activity. For instance, TQM is essentially a top-down process that may not engage staff participation until after a broad design is conceived, although commitment to its purpose is necessary at all stages (Prajogo&Sohal, 2006).

Process improvement refers to the constant refinement of organizational systems and processes for improved value to clients. This is similar to the Japanese Kaizen, which means small but continuous improvement (Corwin & Puckett, 2009). The basis of this argument is that if the chain of processes is made efficient and effective, then the resulting products will also be efficient and effective and will satisfy the customer's needs in the marketplace. This idea of slowly, incrementally, and continuously improving systems yields better products and services (Corwin & Puckett, 2009). Therefore, improvement is about seeking out potential problems or improvement opportunities and not about waiting for failure to identify an area for improvement.

In his analysis of competitive advantage and the microeconomic foundation of economic development, Corwin & Puckett (2009) has explained the link between productivity, competitiveness, and economic development. He points out that productivity growth is upgrading or moving to more sophisticated competing ways. Sophistication determines the prices that companies can command and the efficiency of producing goods and services. This can be made more possible if enterprises continuously seek to improve their organizational processes. The envisaged improvements would be desirable to an enterprise and the government due to their positive effects on the National Economy (RoK, 2013). In this line of thought, the 1997 - 2001 Kenyan Development Plan (RoK, 1997) visualizes the attainment of a status of a newly industrialized country by the year 2020 for economic and industrial take-off.

Partly, for the realization of Kenya's vision 2030, there must be an overall commitment by entrepreneurs and employees towards customer satisfaction and the continuous improvement of products, production processes, services, and management (G.O.K., 2013). In essence, the enterprise must have improved quality consciousness by increasing the value attached by the enterprises to the continuous improvement in the total product production processes (Rauch &Frese, 2006; Kotler, 2007). Therefore, MSMEs must encourage and

reward best practices in the creation of quality assurance systems to enhance their enterprises' competitiveness (BIDPA, 2007; Tolentino, 1997). This is because quality represents a new strategic philosophy of enterprise management in the face of the challenges of globalization and the new knowledge-driven economy (Banjoko, Iwuji&Bagshaw, 2012)). Globalization and a knowledge-driven economy mean that international and domestic markets have changed, and production systems have been transformed in relation to goods and services, information, finance, and market commodities (Liesch, Buckley, Simonin& Knight, 2012; Jara&Escalaith, 2012). Successful enterprises are thus devising strategies to regularly change their products, services, and structures in anticipation of change rather than in response to it (Bausch, 2011). Increasingly, competitiveness is judged based on product quality, speed, technical superiority, quality of service, product differentiation, environment, and social responsibility (C.O.M., 2005). Successful organizations consider these variables as dynamic, and therefore constantly reinterpret them to suit the changing environment, making them an integral part of the business strategy (Vives, 2008).

Specifically, to meet these new terms of competition, there are various approaches to quality and quality management, especially for Small and Medium Scale Enterprises. One such way is by setting up quality systems that enable the entrepreneur to guarantee that the required quality is obtained at an appropriate cost (Halkos&Tzeremes, 2010). At the heart of this is the principle of continuous process improvement, which is core to enterprise competitiveness. Continuous process improvement is an integrated process whereby the entrepreneur and the management use all human resources and relevant useful information to produce a continuous stream of improvements in all aspects of the production to add value to the customer (Bos-brouwers, 2010; Vives, 2008).

The great competitive strength of continuous improvement is represented in its ability to provide greater customer value at an optimal cost than competitors (C.O.M., 2005). Process improvement significantly reduces waste in the whole production process, translating into cost reduction while simultaneously increasing the quality of products. When the entrepreneurs and employees make use of analytical tools such as statistical process control, fishbone diagrams, and similar, to locate and eliminate the internal sources of problems, they generate important site-specific information that can be used to improve task performance and the production process itself (Hu, Zheng& Wang, 2011). In his article on Managing Enterprise Productivity and Competitiveness, Monga (2000) explains the idea behind the continuous process: taking a total view of the process and arranging the total chain of activities to produce the intended result (customer satisfaction) in the timeliest manner. Effective and efficient process management for improvement provides a framework for cooperation across business functional areas (Callahan *et al.*, 2013).

In Kenya and the African region, Small and Medium Scale Enterprises face significant operating constraints, including some of which are beyond the control of the entrepreneurs and their workers. Enterprises in the SMSE sector are typically financially staved and have old or inadequate equipment. Many face high input prices, inadequate infrastructure, and undeveloped marketing and sales chains (Tuan & Takahashi, 2009; OECD, 2004). Therefore, this can make advanced methods such as continuous process improvement challenging to implement under such difficult circumstances. However, it is important to emphasize that MSMEs in Kenya and from other less developed economies will have to meet the challenges of globalization and the new knowledge-driven economy (Murray, 2000). The use of quality management systems through continuous process improvement can be the most effective means of overcoming their difficulties because quality is an integral part of competitiveness worldwide (Banjoko *et al.*, 2012; Ahire&Golhar, 2001). Entrepreneurs will have to produce quality products and sell or fail to meet the quality test and ultimately perish.

To fully benefit from the envisaged outcomes, the entrepreneurs must ensure that the continuous process improvement is enterprise-wide (Lieschet *et al.*, 2012; Armstrong, 2006). This means that all staff members in an MSME must be involved and ensure that the improvements embrace every activity in design, such as production, service, procurement, and customer research if it is to have a profound effect on the firm. In removing common causes of variation in the processes, some steps are imperative in the implementation of continuous quality improvement (Karlan& Martin, 2009). The first step is selecting the target process for continuous quality improvement. This is done by the top management or a team appointed and comes with a firm commitment in time and other necessary resources. Next, there is a need for observation and documentation of the process to enable the collection of performance data and the construction of a baseline model of the current process. In addition, an enterprise must undertake a quality audit by defining the process and determining customer requirements. This is followed by analyzing the process and usage of the baseline model to identify the causes of defects and poor quality. It is then followed by setting appropriate objectives, measurements, and targets (Lieschet *et al.*, 2012).

An entrepreneur must then formulate a strategic plan to guide the improvement of the selected process (Callahan *et al.*, 2013). This plan must include training in continuous process improvement for everyone associated with the process, a revision of management structure and methods, and the Identification of quality-oriented performance metrics to evaluate progress. The plan is then implemented, and this often comes with some initial resistance to change from all levels until concerned members of staff realize the new way of doing things helps them work smarter and better, thus enhancing their pride of workmanship. The next step is the evaluation of the progress. This is achieved by benchmarking the new

process against the old process. The facilitator uses the new performance metrics identified in the strategic plan to track the progress. It is advisable to keep track of any problems so corrective actions can be built into the conversion plan for the next process. Once continuous quality improvement has taken hold, the facilitator should standardize the new process. This marks the completion of the conversion process. A new process for improvement can be identified, and the implementation step is repeated once again (Karlan& Martin, 2009). From this process, the prospects of an enterprise remaining ahead of its competition are enhanced, hence competitiveness.

IV. RESULTS AND DISCUSSION

A. Response Rate

A total of sixty-five (65) food processing S.M.E.s were included in the study. The study recorded an 86.15% response rate, which means that fifty-six (56) Chief Executive Officers, General Managers, or Senior Management staff participated in the study. The nonresponse was due to a combination of factors, including time constraints on the interviewees, unwillingness, and inability to respond to items on the questionnaire.

The distribution of the number of employees in the firms showed that most of the Food Processing S.M.E.s firms had 51 – 100 employees at 33.93%; 101 – 150 were next at 26.79%, 10 – 51 at 23.21%, while 151 – 200 were at 16.07%. There was, however, no significant difference in the sampled firm sizes since the responses were well distributed across the clusters in the target group.

B. Responses on Product Development

The mean responses on items on product development are presented in **Table 4.2.1**.

Table 4.2.1. Product Development

Opinion on item	S.D. %	D %	N.S. %	A %	S.A. %	Mean response
Innovation in product/service development is a high priority in the business unit	1.5	16.7	34.8	43.9	3.0	3.3
Customers are involved in the product/service development process	12.1	36.4	18.2	33.3	-	2.7
Suppliers are involved in the product/service development process	-	13.6	45.5	39.4	1.5	3.3
Operations are involved in the product/service development process	1.5	9.1	30.3	51.5	7.6	3.5
Marketing/Sales are involved in the product/service development process	-	4.5	19.7	68.2	7.6	3.8
Finance and Accounting are involved in the product/service development process	13.6	53.0	27.3	6.1	-	2.3
Research is involved in the product/service development process	-	-	25.8	48.5	25.8	4.0
Finance and accounting policies, in general, do not impede the development process	7.6	27.3	33.3	28.8	3.0	2.9
Innovation in product/service improvement is a high priority in the business unit	1.5	3.0	7.6	63.6	24.2	4.1
Customers are involved in the product/service improvement process	-	-	18.2	65.1	16.7	4.0
Suppliers are involved in the product/service improvement process	1.5	13.6	66.7	18.2	-	3.0
Operations are involved in the product/service improvement process	-	10.6	36.3	48.5	4.5	3.5
Marketing/Sales are involved in the product/service improvement process	-	-	6.1	43.9	50.0	4.4
Finance and Accounting are involved in the product/service improvement process	13.6	48.5	30.3	6.1	1.5	2.3
Research is involved in the product/service improvement process	-	1.5	12.1	59.1	27.3	4.1
Finance and accounting policies, in general, do not impede the improvement process	3.0	27.3	31.8	36.4	1.6	3.1

SD- Strongly disagree; D-Disagree; NS-Not sure; A-Agree; SA-Strongly agree

As expounded in *Table 4.2.1*, the majority of the respondents, at 93.9%, Marketing/Sales are involved in the product/service improvement (mean response 4.4). Innovation in product/service improvement is a high priority in the business unit, and research is involved in the product/service improvement process (mean response 4.1). In 81.8% of the firms, customers are involved in the product/service development and improvement (mean

response 4.0). Marketing/Sales are involved in the product/service development process (mean response 3.8). However, in 66.6% of the firms, Finance and Accounting are not involved in the product/service development process (Mean response 2.3). Finance and Accounting are not involved in the product/service improvement process (mean response 2.3).

C. Responses process Improvement

The mean responses on items on process improvement are presented next in *Table 4.3.1*.

Table 4.3.1. Process Improvement

Opinion on item	S.D. %	D %	N.S. %	A %	S.A. %	Mean response
Innovation in processes is a high priority of the business unit	-	12.1	40.9	47.0	-	3.3
Automation has been effectively incorporated into the business processes	1.5	25.8	37.9	31.8	3.0	3.1
The business unit encourages continuous improvement in all processes	-	3.0	30.3	63.6	3.0	3.7
Workers are rewarded for making continuous improvement in business unit processes	16.7	59.1	1.5	22.7	-	2.3
Training is available to business unit workers to keep their skills up to the level of the new technology	-	18.2	18.2	60.6	3.0	3.5
The business unit's operational processes are flexible	18.2	68.2	7.6	6.1	-	2.0
The business unit's operational processes are used in a flexible manner	22.7	63.6	13.6	-	-	1.9
Vendors are involved in major ways in helping the business unit make improvements in its processes	4.5	43.9	33.3	18.2	-	2.7
The quality of the products produced is used to evaluate the performance of business unit processes	1.5	10.6	34.8	53.0	-	3.4
On-time delivery is used to evaluate the performance of business unit processes	1.5	12.1	36.4	45.5	4.5	3.4
Customer satisfaction is used to evaluate the performance of business processes	1.5	1.5	6.1	53.0	37.9	4.2
Top management is committed to a goal of continuous improvement in the business unit's processes	-	7.6	21.2	65.2	6.1	3.7
Mid-level management is committed to a goal of continuous improvement in the business unit's processes	-	6.1	43.9	37.9	12.1	3.6
Front line supervisors are committed to a goal of continuous improvement in the business unit's processes	-	10.6	39.4	48.5	1.5	3.4
Non-management workers are committed to a goal of continuous improvement in the business processes	1.5	18.2	28.8	51.5	-	3.3

SD- Strongly disagree; D-Disagree; NS-Not sure; A-Agree; SA-Strongly agree

In most of the firms, 90.9%, Customer satisfaction is used to evaluate the performance of business unit processes (mean response 4.2). The business unit encourages continuous improvement in all processes, and top management is committed to continuous improvement in the business unit's processes (mean 3.7). In 50.0% of the firms, Mid-level management is committed to continuous improvement in the business unit's processes (mean 3.6). However, the business unit's operational processes are not used flexibly in 86.3% of the firms, and they are not flexible in 86.4% of the firms.

To establish the level of performance of S.M.E.s about the tested items, a One-Way Analysis of Variance (ANOVA) was conducted on the mean response on the

items tested. The mean response for the tested items is as shown in *Table 4.3.2*.

Table 4.3.2. Mean Responses

Factor / Item	Number of Tested Items	Mean Response Rate	Standard Deviation
Product development	16	3.39	0.65
Process improvements	15	3.17	0.66

Mean denoted by similar letters are not significantly different at P ≤ 0.05

C. Implications of the findings

The study's findings show that food manufacturing S.M.E.s like many other firms in this category, are not performing as expected on product development and process improvement. These findings are in many aspects in agreement with others conducted in the East African region, Africa, and internationally (Nwankwo&Gbadamosi, 2010; McCarthy &Greatbanks, 2006; Ngugi, Gakure, Were &Kibiru, 2012; Kwalandaet al., 2017). These findings show that food manufacturing S.M.E.s in Nairobi City County, Kenya, tend to overlook some necessary and critical quality imperatives, yet customers have over the years continued to demand quality products and services that meet or exceed their expectations. Poor quality products and processes negatively impact employees and other stakeholders because it results in reduced job opportunities, reduced bottom line, and low contribution to the gross domestic product at the national. The findings also imply difficulties for S.M.E.s in their attempt to reposition themselves for competitiveness in the local and international market. The findings are also an impediment to realizing one of the pillars of Kenya's big four agenda and vision 2030. To remain relevant in the current scenario, food manufacturing S.M.E.s must focus not only on doing the right things, but also by doing things right through constantly reviewing and improving design, manufacture, and delivery systems to keep on satisfying changing customer and social needs, and also by developing products that are fit for purpose. This would simultaneously improve the quality of work-life for the employees.

V. CONCLUSION

A. Product Development

In a globalized business environment characterized by rapid technological advancement, enterprises gain a competitive advantage by offering unique products due to developing distinctive competence and proprietary technologies. This is important for enterprises to innovate new products to meet emerging customer tastes and preferences in an internationalized business environment. For this purpose, the management should solicit customers' inputs early on in the product development process and track customer satisfaction with the new product. Core to this is learning how to compress development time using new techniques, strategic partners, early concept tests, and advanced marketing planning. This should be supplemented by developing a matrix enterprise plan that involves all departments in the product development process. This implies that the product development process should resemble a rugby match rather than a relay race, with the team members passing the new product back and forth as they head towards the goal.

Secondly, the production staff should be engaged in continual benchmarking of competing products and processes and be aware of any product innovations. Production staff should also know what works well and doesn't work well in the manufacturing process. Sometimes simplifications in the production process lead

to a more robust design. In addition, the employees should be using the company products routinely and have a very good feel for how they perform. This way, they are more likely to develop ideas for product improvement, which should be submitted to the top management and reviewed periodically.

B. Process Improvement

Improving efficiency in the production process through the creativity and innovation of the workforce can lead to distinctive technical competence and superior production processes premised on cost advantage. Process improvement is thus important in upgrading the MSME systems through tracking and acting on responses from internal and external customers. Therefore, the entrepreneur should emphasize continuous process improvement by establishing cross-functional teams to audit and identify operational processes that need improvement. For this purpose, the entrepreneur should understand the existing processes fully since such understanding would enable appropriate communication amongst the cross-disciplinary teams. Creating documentation for the current process sets the stage for necessary changes to be identified. Understanding the problems inherent in the existing processes also should ensure they are not repeated.

Moreover, the likelihood of overall success diminishes if the real enterprise (as seen through its existing processes) is ignored. Similarly, since the existing process gives a baseline for improvement measurement, this understanding means that the resultant benefits can be measured. The recommended basic requirements are: Involving everyone in the MSME through teamwork, trust, and empowerment, and also Identification of customers and their needs, and then focusing on them.

It is also recommended that the product development team take full responsibility for the new product design project. The implication is that it would be their job to refine, organize and rank the list of customer expectations, benchmark competing products to set design goals, examine several conceptual designs, and then produce a robust product design that would be profitable in the marketplace. Initial ideas can be generated in a brainstorming session, and then selected options can be pursued in more detail. The strength of this approach is that apart from ownership of the process, the team is more motivated to excel, and there are no overlaps since accountabilities are normally well defined.

Finally, the entrepreneurs must remember to direct more of their efforts at controlling the process rather than concentrating on a direct and specific control of the end product. Applying direct control, such as inspection, often only addresses symptoms of potential problems, neglecting the cause, which often lies within the process itself. Processes are many and varied, but each is important and should be controlled appropriately. Manufacturing and service delivery processes are easy to identify, but less

obvious supporting processes must not be ignored. Administration, secretarial and personal services such as typing, greeting visitors, receiving telephone calls, presenting invoices, etc., must also be controlled because they all meet customer and business requirements.

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