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INFLUENCE QUALITY MANAGEMENT ASPECTS ON PERFORMANCE OF MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

Customer satisfaction in the manufacturing industry is never ending as they face numerous challenges and competition daily. This makes quality management critical to this sector as they strive to continuously improve their products to meet customers' expectation. The overall objective of this study was to examine the influence of Quality Management Aspects on performance of manufacturing firms in Kenya, with an aim of making recommendations on proper use of ISO 9001: 2015 procurement quality management in the manufacturing sector. The study aimed to establish how process management, continuous improvement, supplier management and customer focus influence performance of manufacturing firms. To achieve this, the researcher reviewed both theoretical and empirical literature and proposed to use the research methodology that addresses the gaps identified in literature as well as answer the stipulated research questions. This research study adopted a descriptive research design. The researcher preferred this method because it allowed an in-depth study of the subject. To gather data, structured questionnaire was used to collect data. The study population was the manufacturing firms in Nairobi; the respondents were the designated heads of procurement of these firms. 200 heads of procurement were selected using stratified random sampling. Once collected, data was analyzed using descriptive and inferential statistics. Quantitative data was analyzed using multiple regression analysis. The qualitative data generated was analyzed by use of Statistical Package of Social Sciences (SPSS) version 20. The response rate of the study was 86%. The findings of the study indicated that process management, continuous improvement, supplier management and customer focus have a positive relationship with performance in manufacturing firms. Finally, the study recommended that manufacturing firms should embrace procurement total quality practices so as to improve their performance and further researches should to be carried out in other institutions to find out if the same results can be obtained.

Key Words: Quality Management Aspects, process management, continuous improvement, supplier management

INTRODUCTION

The study sets out to investigate the influence of Quality Management Aspectsof manufacturing firms in Kenya. To this end, this chapter builds the case by introducing the problem warranting the study. This chapter presents; the background of the study, problem statement, objectives, research questions, importance of the study, the scope of the study and limitations of the study.

ISO 9001: 2015 procurement quality management is considered an important catalyst in the performance of company's world over. This is why the ISO 9001: 2015 procurement quality management concept has captured the attention of all sides of commerce and industry, as well as that of academics. The large number of academic articles being published in this area is a testimony to the high level of interest in quality issues (Meegan & Taylor, 2015). During the past decade, quality improvement has become one of the most important organizational strategies for achieving competitive advantage.

Improving the quality with which an organization can deliver its products and services is critical for competing in an expanding global market. ISO 9001: 2015 procurement quality management begins with the primary assumption that employees in organizations must cooperate with each other in order to achieve quality for the needs of the customer. One can achieve quality by controlling manufacturing/service processes to prevent defects. ISO 9001: 2015 procurement quality management, however, does not only consist of quality tools and techniques (Masters, 2016).

ISO 9001: 2015 procurement quality management processes also depend on a certain set of values and beliefs shared by all organizational members. The concept of quality has migrated from being considered as a non-price factor on which imperfect competition in the markets is based, to being considered as a strategic resource of firms. In other words, quality went from being a one-dimensional attribute of the product to being considered a multi-dimensional construct which has to be managed and the implementation of which leads to a dynamic capability of firms (Demirbag, Tatoglu, Tekinkus & Zaim, 2015).

Despite the large number of articles and books on ISO 9001: 2015 procurement quality management, ISO 9001: 2015 procurement quality management remains a hazy, ambiguous concept. Quality teams provide companies with the structured environment necessary for successfully implementing and continuously applying the ISO 9001: 2015 procurement quality management (Al-Mashari & Zairi, 2016).

Statement of the Problem

In many emerging economies especially in Asia, manufacturing industry had been the economic growth engine and was the major tradable sector in those economies (Rotich, 2016). However, Kenya's manufacturing industrial sector enjoyed modest growth rates averaging 4 percent over the last decade (KAM, 2014). In the year 2013 manufacturing sector was the second largest sub sector of the economy after agriculture (CCG, 2015) but in 2014, it was in the fourth place behind agriculture, wholesale and retail trade, transport and communication (World Bank, 2015). As a result, the sector had seen a reduction in its contribution to GDP from 13.6% in the early 90's to 9.2% in 2014 (RoK, 2015).

Kenya Vision 2030 emphasizes the need for appropriate manufacturing strategy for efficient and sustainable practices as a way of making the country globally competitive and a prosperous nation (KNBS, 2016). Nevertheless, most manufacturing firms in Kenya operate at a technical efficiency of about 59% compared to their counterparts in Malaysia that average about 74%

(Achuora, Guyo, Arasa & Odhiambo, 2015) raising doubts about the sector's capacity to meet the goals of Vision 2030 (PPOA, 2015).

Kenya's manufacturing sector is burdened by challenges such as resource scarcity, high cost of energy, unreliable electricity supply, low level technology utilization and declining trend of product innovation (UNEP, 2015). Nonetheless, Kenya experienced an average growth of 4.1% p.a. between the years 2006 and 2015 but this was smaller than the average annual growth in the overall GDP of 4.6%.

Kenyan firms still face challenges on the business environment although the country has recorded some improvements in the last years. According to Investment Climate Assessment Report 2017 (ICA, 2014) by the World Bank Group, the top constraints identified were tax rates and tax administration, corruption, security, infrastructure services (electricity and transportation), and business licensing. Although Kenya has recently reduced the number of tax payments, tax administration remains a major burden for firms in Kenya.

High cost of electricity and its quality and transport are the main infrastructure bottlenecks affecting industries in Kenya. Among the major challenges that are facing the industry are the long and time consuming bureaucratic procedures (GoK, 2018). Companies that experience good performance consistently have the understanding of what customer defined quality means to a business. For this reason, manufacturing companies in Kenya are adopting quality management strategies that work for them in order to improve on. It is against this backdrop that this study intends to look at the influence of Quality Management Aspectsof manufacturing firms in Kenya.

The General Objective of the Study

The main objective of the study was to examine the influence of Quality Management Aspects of manufacturing firms in Kenya.

Specific Objectives

i. To assess the influence of process management on performance of manufacturing firms in Kenya.
ii. To establish the influence of continuous improvement on performance of manufacturing firms in Kenya.

LITERARTURE REVIEW

Theoretical Review

This consists of concepts together with their definitions and reference to relevant scholarly literature (Orodho, 2016), existing theory that is used for a particular study. Here a demonstration of understanding of theories and concepts that are relevant to the topic of the research paper and that relate to the broader areas of knowledge being considered (Isaac & Michael, 2018). Thus, it is a collection of interrelated statements or principles that explains the major theories in relation to the influence of Quality Management Aspectsof manufacturing firms in Kenya.

The Theory of Constraints

Theory of constraints is an approach to the management of operations and it was developed by Goldratt (1939). It provides a management theory of how organizations should be run. The concept was extended to theory of constraints (TOC) with a publication which views any manageable system as being limited in achieving more of its objectives by a very small number

of constraints. There is always one constraint and the TOC uses a focusing process to identify the constraint and restructure the organization around it (Tari, Molina & Castejun, 2015).

TOC emphasizes on the optimization of performance within a defined set of constraints of the existing process and it provides an action framework which combines the activities of the managers and the visible system elements. TOC views organizations as systems consisting of resources, which are linked by the processes they perform. The goal of the organization serves as the primary judge of success. Within that system, a constraint is defined as anything that limits the system from achieving higher performance relative to its purpose (Witjaksono, 2014).

The pervasiveness of interdependencies within the organization makes the analogy of a chain, or network of chains, very descriptive of a system's processes. Just as the strength of a chain is governed by its single weakest link, the TOC perspective is that the ability of any organization to achieve its goal is governed by a single, or at most very few, constraints. The theory of constraints defines a set of tools that change agents can use to manage constraints, thereby increasing profits. TOC conceptually models this system as a chain, and advocates the familiar adage that a chain is only as strong as its weakest link. This theory incorporates the idea that the goal or mission of an organization exists, and organizations can be measured and controlled by variations on three measures throughput, operational expense and inventory.

Throughput is the rate at which the system generates money through sales, inventory is all the money that the system has invested in inventory management of the things it intends to sell. Operational expense is all the funds a system spends in order to draw the inventory into throughput (Yeung & Lo, 2016). In the context of this study one of the variables of ISO 9001: 2015 procurement quality management will show the linkage to one of the measures of process management that are used to measure the performances of organizations in the manufacturing sector.

The Lean Theory

The term 'lean Production' was first used by Womack and Jones to describe the 2:1 difference in productivity they found between car assembly plants in Japan and those in Europe. They subsequently explained how companies could make dramatic improvements in performance by adopting the lean approach to manufacturing pioneered by the Toyota Corporation. Lean is a functional model which basically discounts the value of economies of scale and focuses on how to reduce costs as a result of small, incremental and continuous improvement (Yusef, Gunasekaran & Dan, 2016).

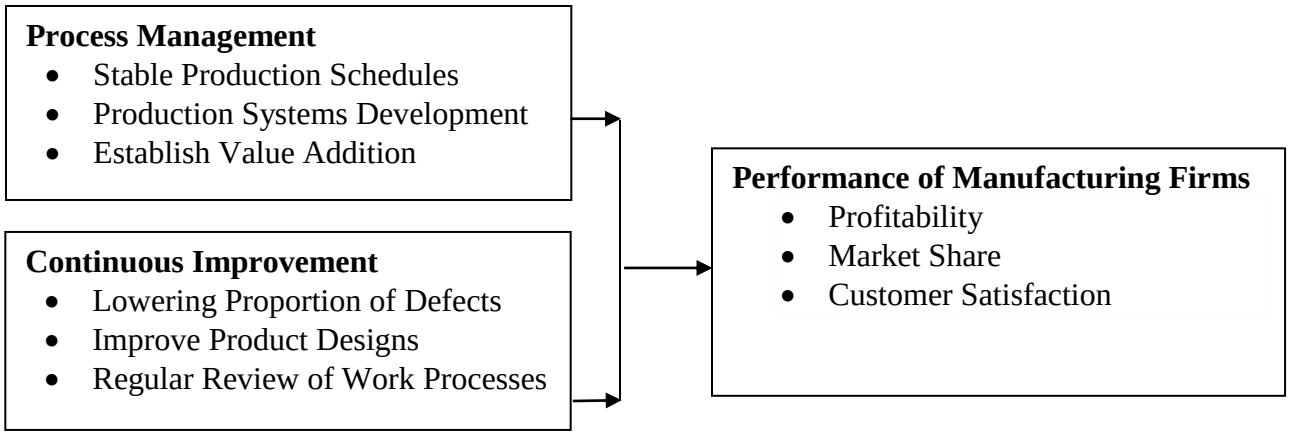
Initially organizations involved in manufacturing of products used to involved in manufacturing of products used to involve themselves in lean manufacturing techniques, this has ceased as lean has expanded beyond manufacturing (Nikzad-Zeidi & Tayebi, 2014). Lean manufacturing law seeks to explain how organization should manage its ISO 9001: 2015 procurement quality management system and needs. It states that ISO 9001: 2015 procurement quality management can be used as a strategic differentiator by the organization and further goes on to say that not all continuous improvement is about waste.

The theory stated that ISO 9001: 2015 procurement quality management strategies developed by an organization should support the customer's need and expectations. ISO 9001: 2015 procurement quality management strategies should not be a driver on how much and when a product will be delivered to a customer, rather, the customers' expectations should be understood and transport strategies is designed purposely to meet those expectations.

Real savings can only be realized through day to day management and optimization of customer requirements variability. This therefore implies that cost associated with transportation cannot be achieved through inconsistent transportation network designs (Malik, Iqbal, Shaukat & Yong, 2015). This theory is relevant to the study because continuous improvement is a key component in effective and efficient performance in the manufacturing industry.

Conceptual Framework

Conceptual framework is a detailed description of the phenomenon under the study accompanied by the graphical or visual depiction of the major variable of the study (Ngechu, 2016). According to Larry (2015) conceptual framework is diagrammatical representation that shows the relationship between dependent variable and independent variables.



Process Management

Process management in this study will be considered as a ISO 9001: 2015 procurement quality management variable that influences performance of manufacturing firms. The attributes of process management which will be taken into consideration in this study are: stable production schedules, production systems development and establishing value addition mechanisms. The belief that the process is the entity that should be managed in order to eliminate or minimize errors, and the belief that improvements related to production processes will necessarily improve the overall quality performance (David & Robert, 2014).

Process management includes reviewing products and services to ensure they are consistent in quality standards, to ensure products continue to meet customer needs, and to ensure products are available in all markets. Managers must also review the cost of raw materials and production methods, ensuring that delivering high-quality goods can be done at relatively cheap costs.

Process management and improvement as a strategy in implementing ISO 9001: 2015 procurement quality management connotes a set of methodological and behavioral practices, which are implemented to control and improve processes that produce products and services (Cua, McKone & Schroeder, 2016). The Japanese strongly believe that an atmosphere of cleanliness adds to quality, thus, shop floor management is highly emphasized by Japanese firms. It is a very important practice to keep the firm neat and clean at all times, which can contribute to effective process management and improvement (Chong & Rundus, 2014).

One aspect of process management and improvement is equipment maintenance, which ensures that variation is kept within acceptable bounds, keeping the manufacturing process running

smoothly. Process capability is the measured, inherent variation of the product turned out by a process, and provides a quantified prediction of process adequacy (Brah, Tee & Rao, 2014). Excellent organizations design, manage and improve the processes to create full satisfaction and increase value for customers and other stakeholders. Process management appears as the intermediary between other dimensions and outcomes. Key processes significantly influence the organizations' important outcomes (Chang, Lin, Yang & Sheu, 2016).

Continuous Improvement

Continuous improvement in this study will be considered as a ISO 9001: 2015 procurement quality management variable that influences performance of manufacturing firms. The attributes of continuous improvement which will be taken into consideration in this study are: lowering proportion of defects, improving product designs and regular review of work processes. Continuous improvement (CI) is a philosophy that Deming (1974) described simply as consisting of improvement initiatives that increase successes and reduce failures (Bilich & Neto, 2015).

Yet others view CI as either as an offshoot of existing quality initiatives like ISO 9001: 2015 procurement quality management or as a completely new approach of enhancing creativity and achieving competitive excellence in today's market. According to Awino (2016), total quality can be achieved by constantly pursuing CI through the involvement of people from all organizational levels. We define CI more generally as a culture of sustained improvement targeting the elimination of waste in all systems and processes of an organization. It involves everyone working together to make improvements without necessarily making huge capital investments. CI can occur through evolutionary improvement, in which case improvements are incremental, or though radical changes that take place as a result of an innovative idea or new technology (Bahri, Hamzah & Yusuf, 2014).

Continuous improvement process is a set of methods for aligning all the components of a business to the quality requirements of the client or customer, in order to maximize quality and reduce waste. Continuous improvement process uses a phased approach, designed to support the entire product life cycle from inception, design and development, through rollout, to updates and support (Ahire & Dreyfus, 2015).

ISO 9001: 2015 procurement quality management is driven by the understanding that no consumer market continues to operate at the same level of demand every year. As the business cycle moves through booms and busts, customers change preference and incomes change; companies must be willing to adjust to these changes to ensure ISO 9001: 2015 procurement quality management for their products and services. Improving processes to reduce costs, finding cheaper raw materials or reducing labor costs are ways businesses may improve processes to remain competitive.

Empirical Review

Process Management

Process management is described as the design, control and improvement of processes. Quality gurus such as Deming and Juran (1958) charge that process management is universally beneficial to any organization. However, research results on the impact of process management on efficiency related performance measures are mixed. Lai (2018), for example, reported that process management positively impacted performance, while others have showed that process management has no real impact on operational performance.

Process control is defined as monitoring existing process conditions to ensure stability and consistent performance (Kazemi *et al.,* 2016). Process improvement is the changing of existing processes to enhance performance. Process design is the development and implementation of new processes and may be associated with new product innovation. The traditional view of process management hinges on the concepts of process control and process improvement, but all three components are critical aspects of process management (Joiner, 2014).

Existing literature also suggests that process management requires a tradeoff between innovation and efficiency outcomes. Process management is positioned as a management practice that places too much attention on improving efficiency, thereby hindering a firm's ability to focus on innovation through exploration. Evans and Dean (2018) argued that process management practices stabilize organizational processes and create an environment focused on searching for easy opportunities to gain efficiency.

However, Ferdows (2014) did find that process management had a significant positive relationship with innovation performance in their studies. To be efficient, plants must quickly and effectively produce product with little waste. Gains in efficiency occur by producing a consistent product that conforms to product specifications. Process control focuses on identifying and removing defects and reducing process variation.

Employees increase their ability to identify defects because of the learning that occurs from actively performing the same recurring tasks (Bahri *et al.,* 2014). Process control can reduce the need for rework, thereby favorably impacting process cycle time and efficiency. Process improvement ideas also come through incremental learning. As employees become more proficient in their tasks, ideas are generated on how to change the existing process to be more efficient.

Continuous Improvement

Continuous improvement refers to searching for never-ending improvements and developing processes to find better methods in the process of converting inputs into outputs. By improving interlinked processes, a firm can do a better job of satisfying customers' needs and expectations (Baird, 2016). In his fifth point, Deming (1939) proposed decreasing the proportion of defects and continuously improving product or service design. In a total quality setting, work processes are reviewed and improved constantly and process management heuristics are used to improve team problem-solving and decision making (Abdurrahman, 2014).

Reduction in variation improves output, the need for rework, mistakes, and waste of staff, machine time, and materials. Implementing continuous improvement in managing everyday business activities is relevant to all those who participate in and contribute to the success of the organizations. Continuous improvement entails systematic measurement and focus on product or service, excellence teams, cross-functional process management, attainment, maintenance and improvement of standards (Chong *et al.,* 2014). Global competition for increasingly demanding customers has necessitated changing acceptable standards. What appear to be best products or services today may be disregarded tomorrow.

Customer expectations are increasing and changing with the dynamics of global environmental changes. Organization is benchmarking one another so as to unravel the secrets behind their successes. According to Demirbag *et al.,* (2015), the major challenge to organization is how to acquire customers, retain them, build relationship with them and discover ways of being more valuable to them. No organization can achieve this without continuously improving not only its products or services but also processes and people.

Continuous improvement refers to the constant refinement and improvement of products, services and organizational systems to yield improved value to customers. One unique attribute of continuous improvement which has paid-off for organizations that have focus on it, is that looking for ways to continuously improve the quality of products or services in the absence of customer complaints and problems may preclude a future problem. Hoyer *et al.,* (2015) opined that ISO 9001: 2015 procurement quality management is a necessity, it is a journey, and it will never end. Continuous improvement involves both innovation and maintenance, and improvement through small steps, however often leading to radical breakthrough.

RESEARCH METHODOLOGY

Research Design

A descriptive research design was employed to collect data for this study. According to Dunn (2018) research design is a basic plan which guides the data collection and analysis phases of the research project. In the opinion of Mugenda and Mugenda (2014) research design is the arrangement for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

Target Population

Larry (2015) defines target population as the total number of subjects or the total environment of interests to the researcher. Kothari (2018) explains that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. This definition assumes that the population is not homogeneous. The population of this study comprised all manufactures firms in Kenya. The target population was the manufacturing firms in Nairobi, registered with Kenya Association of Manufacturers (KAM, 2019). At the time of this study there were a total of 400 manufacturing firms which are members of KAM.

Sampling Technique and Sample Size

The equation gives sample size of 200 manufacturing firms. Therefore, the study sought to gather information from 200 manufacturing firms located in Nairobi, where the heads of procurement were used. This sample is deemed good representation of the populations since the sample size is greater than 10% of the target population. Mugenda and Mugenda (2014) argue that for a sample to be a good representative of the population it should be at least 10% of the target population.

After getting the sample size of 200 firms, it is necessary to explain on how to select the number for data gathering from the target population of 400 firms. The selection employed appropriate sampling techniques that take into account the distribution of manufacturing firms. This study used probability sampling since the population and location of manufacturing firms is known. Specifically, the study used stratified random sampling in order to account for the uneven distribution of firms in various segments. Based on distribution of firms in the 14 segments (table 3.1), the researcher used proportions calculated in the population distribution to come up with a representative sample distribution as shown in table 3.2. The proportions calculated give the number of firms to be included in the sample for each segment. Thereafter purposive sampling is used to select the names of manufacturing firms in which data is to be collected. Using Kothari (2014) formula; Where n is the sample size, N is the population (400) and beta denotes the error, set at 0.05

Data Collection Instruments

According to Orodho (2016) there are many methods of data collection. The choice of instruments depends mainly on the attributes of the subjects, research topic, problem question,

objectives, design expectation data and results. This is because each tool and instrument collects specific data. Primary data on the Quality Management Aspectsof manufacturing firms was collected using questionnaires. Secondary data was obtained from relevant literature review from dissertations, journals, magazines and internet. These questionnaires were constructed with both open and closed ended. The questionnaire was divided into three sections; Section A will seek establish personal details of the respondent, i.e. education level, professional and position in the company, Section B contained the four independent variables of the study and section C contained the dependent variable of the of study.

Data Collection Procedure

Primary data was collected using questionnaires which were administered by the researcher. The questionnaire compromised questions which answered questions related to the study objectives. The closed ended questions provided alternatives of answers from which respondents selected. The open ended questions were also used to give respondents a chance to provide an insight into their feelings, interests and backgrounds of the study (Ngechu, 2016). This process was done while assuring the participants confidentiality of the provided information.

Pilot Study

A pilot study was done to assess the capability of the research instruments to collect required data for the research. According to Larry (2015), 10% of the target population should constitute the pilot test which should not be included in final study. According to Kothari (2018) the respondents on which the questionnaire was pretested, were not part of the target population of the study. Cranach's Coefficient Alpha was computed to determine how items correlate among themselves (Mugenda & Mugenda, 2014). The information obtained during the pre-testing of the questionnaire was used to revise and improve on the questionnaire.

Data Analysis and Presentation

The data obtained from the research instruments was analyzed using descriptive statistics as well as inferential statistics (Dunn, 2014). Statistical Package for the Science (SPSS) Version 20 was used for qualitative data analysis, it has got descriptive statistics features that assists in open ended response comparison and gave a clear indication of response frequencies (Larry, 2015). Standard deviation represented the degree of variability in the response. Frequency distribution tables and pie charts were used to present the data (Isaac & Michael, 2015).

Quantitative data was analyzed by employing inferential analysis. It gives simple summaries about the sample data and presents quantitative descriptions in a manageable form (Kasomo, 2015). The Pearson correlation coefficient is a correlation coefficient that in this study was used to indicate one on one association between each of the independent variable to the dependent variables.

Multiple regression analysis was used to determine the relationships between the four independent variables and the dependent variable. The coefficient of determination (R-Square) resulting from the linear regression was used to determine the goodness of fit (Ngechu, 2016). To determine the relative importance of each of the independent variable on the dependent variable beta coefficient was done and tested for significance at 5% significance level.

DATA ANALYSIS AND PRESENTATION

Descriptive Statistics

The study set out to establish the influence of Quality Management Aspectsof manufacturing firms in Kenya. To this end, four variables were conceptualized as components of ISO 9001:

2015 procurement quality management of manufacturing firms in Kenya. These include; process management, continuous improvement, supplier management and customer focus.

Process Management

The first objective of the study was to assess the influence of process management on performance of manufacturing firms in Kenya. The respondents were asked to indicate to what extent process management influences performance of manufacturing firms in Kenya. Results indicated that majority of the respondents 34% said it was to a very great extent 19% said that it was to a great extent, 18% said it was moderate, while little extent was at 17% and not all at 12%.

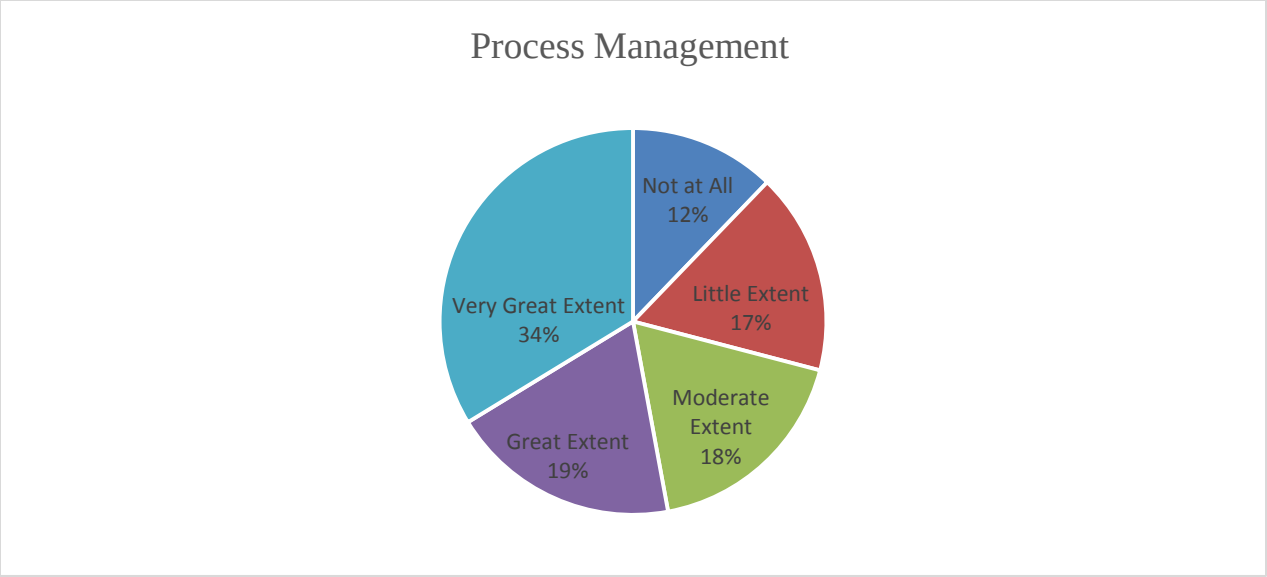


Figure 1: Process Management

The respondents were also asked to comment on statements regarding process management influence on performance of manufacturing firms in Kenya. The responses were rated on a likert scale and the results presented in Table 4.4 below. It was rated on a 5 point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.

Results indicated that majority of the respondents 58.1% agreed on the statement that stable production schedules play a significant role in profitability improvement. Further results indicated that 58.8 % of the respondents were in agreement that production systems development play a significant role in profitability improvement. A 61.1% of the respondents agreed that value addition mechanisms play a significant role in profitability improvement.

87.2% of the respondents expressed agreement on the statement that stable production schedules play a significant role in expanding market share. Results indicated that majority of the respondents 90.1% agreed on the statement that production systems greatly influenced market share. Results indicated that majority of the respondents 92.4% agreed on the statement that value addition mechanisms play a significant role in expanding market share.

Results indicated that majority of the respondents 91.9% agreed on the statement that stable production schedules play a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 60.5% agreed on the statement that production systems development play a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 84.8% agreed on the statement that value addition mechanisms play a significant role in attaining higher customer satisfaction.

The average mean of all the statements was 4.04 indicating that majority of the respondents agreed on process management influence on performance of manufacturing firms in Kenya. However, the variations in the responses were varied as shown by a standard deviation of 0.992. These findings imply that process management was at the heart of the organization. The findings agree with Kazemi and Hooshyar (2016) that using process management when dealing with ISO 9001: 2015 procurement quality management for a new product or service can be smart.

Table 1: Process Management

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Stable production schedules play a significant role in profitability improvement	4.10%	2.90%	34.90%	30.80%	27.30%	3.82	0.941
Production systems development play a significant role in profitability improvement	0.60%	5.20%	35.50%	29.10%	29.70%	3.65	1.101
Value addition mechanisms play a significant role in profitability improvement	7.00%	5.20%	26.70%	38.40%	22.70%	4.12	1.139
Stable production schedules play a significant role in expanding market share	7.00%	5.80%	0.00%	43.00%	44.20%	4.3	0.873
Production systems development play a significant role in expanding market share	2.30%	2.90%	4.70%	42.40%	47.70%	4.26	0.907
Value addition mechanisms play a significant role in expanding market share	2.90%	4.70%	0.00%	48.80%	43.60%	4.35	0.77
Stable production schedules play a significant role in attaining higher customer satisfaction	1.70%	0.60%	5.80%	44.20%	47.70%	3.73	1.175
Production systems development play a significant role in attaining higher customer satisfaction	9.30%	0.00%	30.20%	29.70%	30.80%	4.15	1.03
Value addition mechanisms play a significant role in attaining higher customer satisfaction	5.80%	1.20%	8.10%	42.40%	42.40%	4.26	4.26
Average						**4.04**	**0.992**

Continuous Improvement

The second objective of the study was to establish the influence of continuous improvement on performance of manufacturing firms in Kenya. The respondents were asked to indicate to what extent the influence of continuous improvement had on performance of manufacturing firms in Kenya. Results indicated that majority of the respondents 33% agreed that it was to a very great extent, 26 % said that it was to a great extent, 16% said it was moderate, while 12% said by little extent and not all tied was at 13%.

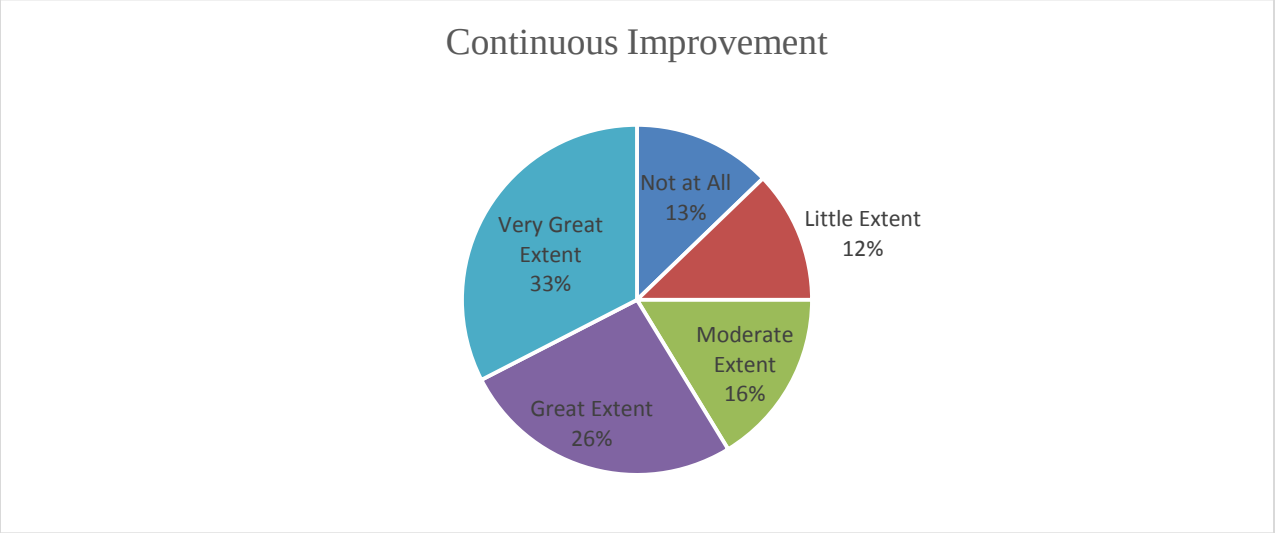


Figure 2: Continuous Improvement

The respondents were also asked to comment on statements regarding influence of continuous improvement on performance of manufacturing firms in Kenya. Results indicated that majority of the respondents 69.8% agreed on statement that lowering the proportion of defects plays a significant role in profitability improvement. Further results indicated that 56.4% of the respondents were in agreement that improved product designs play a significant role in profitability improvement. A 40.7% of the respondents agreed that reviewing work processes plays a significant role in profitability improvement.

44.7% of the respondents expressed agreement on the statement that lowering the proportion of defects plays a significant role in expanding market share. Results indicated that majority of the respondents 95.3% agreed on the statement that improved product designs play a significant role in expanding market share. Results indicated that majority of the respondents 40.7% agreed on the statement that reviewing work processes plays a significant role in expanding market share.

Results indicated that majority of the respondents 44.7% agreed on the statement that lowering the proportion of defects plays a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 57.5% agreed on the statement that improved product designs play a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 48.2% agreed on the statement that Reviewing work processes plays a significant role in attaining higher customer satisfaction.

The average mean of all the statements was 3.67 indicating that majority of the respondents agreed on continuous improvement influence on performance of manufacturing firms in Kenya. However, the variations in the responses were varied as shown by a standard deviation of 1.113. These findings indicate that through continuous improvement, the management could improve

the processes capacity, demand additional cost reductions, faster deliveries, better quality and better performance. This study agrees with Kirungu (2014) that organizations must look toward their continuous operational improvements. The opportunities for cost savings and operational improvements can be enormous as the impact on margins and bottom line is considerable.

Table 3: Continuous Improvement

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Lowering the proportion of defects plays a significant role in profitability improvement	0.00%	0.00%	30.20%	37.80%	32.00%	3.71	1.001
Improved product designs plays a significant role in profitability improvement	4.10%	2.30%	37.20%	31.40%	25.00%	3.86	0.975
Reviewing work processes plays a significant role in profitability improvement	4.10%	1.20%	27.30%	39.50%	27.90%	4.33	0.924
Lowering the proportion of defects plays a significant role in expanding market share	5.20%	0.00%	0.00%	45.90%	48.80%	4.34	0.804
Improved product designs plays a significant role in expanding market share	2.30%	2.30%	0.00%	50.00%	45.30%	3.04	1.448
Reviewing work processes plays a significant role in expanding market share	19.20%	21.50%	18.60%	17.40%	23.30%	3.01	1.477
Lowering the proportion of defects plays a significant role in attaining higher customer satisfaction	23.30%	18.00%	14.00%	24.40%	20.30%	3.62	1.104
Improved product designs plays a significant role in attaining higher customer satisfaction	0.00%	22.10%	20.30%	30.80%	26.70%	3.48	1.172
Reviewing work processes plays a significant role in attaining higher customer satisfaction	2.30%	22.10%	27.30%	21.50%	26.70%	3.51	1.167
Average						**3.67**	**1.113**

Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the independent variables. The correlation technique is used to analyze the degree of relationship

between two variables. The results of the correlation analysis are summarized in Table 4.10

Table 4: Summary of Pearson's Correlations

		Process Management	Continuous Improvement	
Process Management	Pearson Correlation	1		
	Sig. (2-tailed)			
Continuous Improvement	Pearson Correlation	.661**		1
	Sig. (2-tailed)	0		
Performance of Manufacturing Firms	Pearson Correlation	.677**	.387**	
	Sig. (2-tailed)	0	0	

** Correlation is significant at the 0.05 level (2-tailed).

The correlation summary shown in Table 4.10 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between process management and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship (r=0.677) between process management and performance of manufacturing firms in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05).

The correlation analysis to determine the relationship between continuous improvement and performance of manufacturing firms in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship (r=0.387) between and continuous improvement performance of manufacturing firms in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05).

Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (performance of manufacturing firms in Kenya) which can be predicted from the independent variables (process management, continuous improvement). Table 4.11 presents the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there is a significant positive relationship between dependent variable and the independent variable.

The independent variables reported R value of 0.814 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.663 means that 66.3% of the corresponding variation in performance of manufacturing firms in Kenya can be explained or predicted by (process management, continuous improvement,). The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at (β=0.655), p=0.000 <0.05).

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.814[a]	.663	.655	.153653

a) Predictors: (constant), Process Management, Continuous Improvement,
b) Dependent Variable: Performance of Manufacturing Firms

Table 6: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.764	2	1.941	82.214	.000[b]
	Residual	3.943	169	0.024		
	Total	11.707	171			

a) Predictors: (constant), Process Management, Continuous Improvement,
b) Dependent Variable: Performance of Manufacturing Firms

The significance value is 0.000 which is less that 0.05 thus the model is statistically significance in predicting how process management, continuous improvement influence performance of manufacturing firms. The F critical at 5% level of significance was 61.793. Since F calculated which can be noted from the ANOVA table above is 82.214 which is greater than the F critical (value = 61.793), this shows that the overall model was significant. The study therefore establishes that; process management, continuous improvement were all important ISO 9001: 2015 procurement quality management practices influencing performance of manufacturing firms. These results agree with Smith (2015) results which indicated a positive and significant influence of Quality Management Aspectsof manufacturing firms.

Table 7: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.987	.283		3.484	.001
	Process Management	.590	.083	.482	7.103	.000
	Customer Focus	.243	.029	.458	8.270	.000

a) Predictors: (constant), Process Management, Continuous Improvement,
b) Dependent Variable: Performance of Manufacturing Firms

The study has established that taking all factors into account (process management, continuous improvement,) constant at zero, performance of manufacturing firms in Kenya will be an index of 0.987. The findings presented also shows that taking all other independent variables at zero, a unit increase in process management will lead to a 0.59 increase in performance of manufacturing firms in Kenya. The P-value was 0.000 which is less 0.05 and thus the relationship was significant.

Conclusion of the study

First, in regard to process management, the regression coefficients of the study show that it has a significant influence of 0.590 on performance of manufacturing firms. This implies that increasing levels of process management by a unit would increase the levels of performance of

manufacturing firms by 0.590. This shows that process management has a positive influence on performance of manufacturing firms.

Second in regard to customer focus, the regression coefficients of the study show that it has a significant influence of 0.243 on performance of manufacturing firms. This implies that increasing levels of customer focus by a unit would increase the levels of performance of manufacturing firms by 0.243. This shows that customer focus has a positive influence on performance of manufacturing firms.

Recommendations of the Study

To ensure that manufacturing firms have better performance they should focus more on using their process management so as to establish stable production schedules, develop their production systems and ensure that there are value addition mechanisms. In the same regard, they should outsource consultants to enable them to come up with process management practices that articulate with their organization objectives.

With regard to the second objective, it would be salutary for manufacturing firms to invest more in continuous improvement to reduce the cost of procurement through unnecessary proportions of defective goods and ensure suppliers get it right the first time. This should be done consistently with the training, improvement of their channels, processes and capacity as well as enabling them financially to acquire the up to date equipment.

In relation to supplier management, the organizations should form strategic alliances with their suppliers so as to have a more improved working relationship characterized by a shared mindset and good financial and funds flow. If manufacturing firms embrace supplier development among its suppliers, then there will be cost reduction and timing of delivery will improve.

Areas for Further Studies

The study is a milestone for further research in the field of performance of manufacturing firms in Africa and particularly in Kenya. The findings demonstrated the important ISO 9001: 2015 procurement quality management to performance of manufacturing firms to include; process management, continuous improvement, supplier management and customer focus. The current study should therefore be expanded further in future in order to include other ISO 9001: 2015 procurement quality management that may as well have a positive significance to performance of manufacturing firms. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other institutions in Kenya and other countries in order to establish whether the explored practices herein can be generalized to influence performance in the institutions.

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