PRODUCT QUALITY CERTIFICATION SCHEMES AND PRODUCT PERFORMANCE IN FOOD AND BEVERAGE MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, KENYA

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DECLARATION

I declare that this research project is my original work and it has not been submitted for the award of any degree or diploma in any other institution. No part of the project should be reproduced without the authority of the author and/or Kenyatta University.

Signature_____ Date _____

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This research project is submitted for examination with my approval as the appointed university supervisor.

Signature_____ Date _____

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DEDICATION

This research project is dedicated to my beloved parents without whom; my dreams of going to school would not have been possible; God bless you. It is also dedicated to my family for their encouragement, patience, and understanding, in the course of my studies when they most needed my attention and whose prayers, love and tolerance have strengthened me all the time.

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ABBREVIATIONS AND ACRONYMS

KEBS	Kenya Bureau of Standards
QMS	quality Management System
ISO	International Organization for Standards
D-MARK	Diamond Mark
S-MARK	Standardization Mark
ARSO	Africa regional organization for standardization
PDCA	Plan Detect Check Act Cycle
EAC	East Africa Community
LIMS	Laboratory Information management System
GMP	Good manufacturing Practices

OPERATIONAL DEFINITION OF TERMS

Certification Scheme	Refer to the set of regulations on the basis of which the certificate of conformity with the referred Standards is issued, maintained, suspended or withdrawn
Diamond Mark	It is a voluntary product certification scheme issued by the Kenya Bureau of Standards to manufacturers who have demonstrated high degree of excellence in product manufacturing and quality.
ISO 9001: 2008	it is certification that enables a quality management system based on outstanding management principles like a strong customer focus and continuous improvement.
ISO	Is an independent international organization that sets standards and is composed f representatives from various standards organizations.
Kenya Bureau of Standards	It is a government agency in Kenya that is responsible in governing and maintaining standards and quality practices as stated in the standard Act Cap 496, Laws of Kenya.
PDCA cycle	Is a repetitive model for continuous improvement in the business processes.
Product certification	It is the issuance of a certificate of ark by a third party to show that a specific product meets a defined set of requirement usually specified in a standard.

Product Performance	Refer to the quality and performance of existing products and firms' records with respect to the development of new products
Quality	is a measure of excellence or a state of being free from defects and significant variations.
Quality Assurance	Program Refer to the way of preventing mistakes and defects in manufactured products and avoiding problems when delivering products or services to customers
Quality management Systems	These are formal documented processes, procedures and responsibilities for achieving quality policies and objectives.
Standardization Mark	It is a mandatory product certification Scheme for locally manufactured products that are provided under section 10 of the standard Act Cap 496, Laws of Kenya.

ABSTRACT

Quality assurance programmes in food and beverage manufacturing are aimed at ensuring efficient and effective output of products that meet needs of consumers (Quality) and adhere to regulatory requirements. In Kenya, the foremost quality assurance programs are mandatory and are supervised by government agencies to check for compliance. In the manufacturing sector, food and beverage subsector, have adopted international and product specific quality assurance programs in abide to meet the objectives. The general objective of this study was to investigate the influence of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The specific objectives of the study were to determine the influence of ISO 9001:2008, diamond mark and standardization mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The study was guided by quality management theory and structural contingency theory. This study adopted a descriptive research design for the study. The study targeted 65 respondents comprising of quality assurance managers and support staff. A cluster sampling was carried out to sample the respondents. Questionnaires were used as data collection instruments which were administered to all the respondents. Descriptive statistical analysis such as mean and standard deviation were used to analyze quantitative. Multiple regressions were used to determine the relationship between variables. ISO 9001:2008, diamond mark and standardization mark was found to have a positive significance on product performance. The study concludes that ISO 9001:2008 provides managers with a tool that is designed to continually improve their business performance and gives an organization a positive image, raising it up to the level of its competitors or perhaps even a level higher. Diamond mark is a mark of excellence awarded to manufacturers either based locally or abroad which has demonstrated high degree of excellence in product manufacturing and quality. On standardization mark, the study concludes that for the organization to acquire the mark, manufactured goods are expected to meet quality requirements as specified in the various Kenya/Approved Standards. The study recommends that the organization should set objectives of the processes and systems on what to do and how to do to deliver results. The organization should effectively adopt diamond mark and use it as a strategic decision that enables organizations to continuously improve their overall product performance and focus on providing customers with products and services of consistent quality. The organization to employ a staff compliment of qualified auditors to cater to all its field of operations in carrying out evaluation and assessment techniques to a high degree of professional competence.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Customer's preferences have changed in the recent years and many want goods and services that are of high quality in terms of product performance and specific attributes (Roberta, Pamela, Maurizio & Martin, 2014). The increasing number of the middle class in Kenya (Institute of Economic affairs, 2015) has contributed to this making Kenya witness high motivation in implementation of ISO 9001. However, the food and beverage sector being crucial sector, specified characteristics of food products, quality assurance is very important.

In the recent years, food controversies have left consumers in confusion not knowing how safe the products they buy from the market are. Bottled water is one of the most easily accessible product in Kenya and a high risk product as well (KEBS, 2016). Estimates have placed bottled water sales at USD 50 to 100 billion annually (Dr.Kizito, 2012). However, there is wide spread contamination with plastic in bottled water that comes through packaging process (Sherri Mason, 2018). Water bottling firms operate without valid product certification marks as they have failed to meet the requirement for bottled water (KEBS, 2018). This is why quality management schemes have become the mostly used words in business in Kenya.

Quality management schemes such as ISO 9001:2008,Diamond mark and standardization mark product certification schemes(Maurizio, Fiorenzo & Luca, 2015) in Kenya are regarded and indeed marketed as a solution to quality problems that firms encounter. This is because, having quality management schemes there will be continuous improvement, prevention of non conformities and customer satisfaction as stated in the QMS principles. The emphasis on quality has not only been in Kenya but worldwide with ISO Survey of Quality Management System

Standard certificates clearly showing that ISO 9001 certificates represent 71% of the total number of certificates issued globally (Chris Trott, 2015).

Today, the global market has increasingly become small making competition among firms too high. This has led to strong emphasis on meeting customer satisfaction in order to create a competitive advantage and survival of organisations (Carr, 1996). In Kenya, quality issues have been largely left to the regulatory agencies. For example the Kenya Bureau of Standards which ensures that a product from manufacturing companies conforms to Kenyan Standards under cap496 of the laws of Kenya. For this reason, quality management has been not only to safe guard the consumer but also act as a legal requirement. This is the reason for creation of the Diamond mark of quality and standardization mark to ensure that a quality philosophy is embraced by local and international manufacturers who would like to venture in the Kenyan market. These quality schemes not only do they help in quality performance improvement, but also help manufacturers select the best during decision making.

1.1.1 Product Quality Certification Schemes

Product certification involves the issuance of a certificate or mark (or both) by a third party to demonstrate that a specific product meets a defined set of requirements such as safety, fitness for use and/or interchangeability characteristics for that product, usually specified in a standard (Auld, Gulbrandsen & McDermott, 2015). According to McDermott (2013) product certification mark is normally found on the product or its packaging and may also appear on a certificate issued by the product certification body. The mark carries a reference to the number or name of the relevant product standard against which the product has been certified.

Quality aspects of products from manufacturing companies have been left for the Kenya Bureau of standards to ensure conformity to Kenyan Standards under cap 496 of the laws of Kenya. This agency has come up with product quality certification schemes that help companies in Kenya develop efficient management systems that are tailored to their business processes. Product certification ensures compliance of local and imported product with applicable Kenya standards, East Africa standard and approved international standards (Namutala, 2013).These schemes systematically help to maintain and constantly improve companies overall performance. The main Quality management system standard focus on continual improvement of companies. The study will focus on ISO 9001:2008, Diamond mark and Standardization mark.

ISO 9001:2008 is certification that enables a quality management system based on outstanding management principles like a strong customer focus and continuous improvement. The food manufacturing industry is characterised by scandals, prioritised customer demands with regards to food safety and quality, it also has strong competition (Evangelos, Dimitrios & Fotopoulos, 2012). By adopting ISO 9001:2008, companies focus more on their customer needs,as this helps in decision making especially during product design in order for firms to produce what customers want. Processes will be documented making it easy during production as well as reduce defects in final products which will also reduce the cost of production. ISO 9001:2008 requires vetting of suppliers to protect firms from rogue suppliers who would sell raw materials that are of poor quality leading to poor quality products. It also facilitates training opportunities; employees are encouraged to be trained on new business processes in the market. At the end of the day, performance is evaluated by comparing the actual results against the targets. Generally, the outcome is expected to have improved if it is consistently implemented.

This increase in awareness of the quality philosophy has resulted in companies increase demand for quality recognition. This has been a major driver of the ISOs development of ISO 9000 series, a standard for quality assurance of products and services which has been adopted by thousands of companies worldwide. According to(ISO,2008), in East and Central Africa, Kenya has the highest number of ISO 9001certificationwith a total of 257 compared to other countries in the region. KEBS has a total of 179 firms that are ISO 9001:2008 certified. This includes both the service and product industries. Worldwide,ISO 9001standard is the most recognised with more than 1,250,000 certificates issued in more than 185countries by 2015(Chris Trott, 2015). ISO 9001 certification is driven by firms' belief that having a quality management system is not only an outward show of quality compliance but also an inward commitment to quality as a strategy. A fully documented QMS willhelpmeet the customer requirements hence increase the level of confidence customers have on products and services produced .According to Besterfield (2003),nonconformities are usually seen as errors during production process, this results to delays and poor quality products(Alhatmi,2010) making it difficult to survive in a competitive environment. QMS enables an organisation meet it objectives set out by the policy and strategy as it provides consistency and satisfaction in terms of methods, materials and equipment.

The Diamond mark is a quality certification scheme that uses quality as strategy to giving a competitive edge. Product with a diamond mark automatically qualifies for a standardization mark. The diamond mark issued by KEBS is designed for companies who go an extra step in assuring quality of their products by not only meeting the minimum legal requirement, but also go an extra mile to guarantee that their products are of the highest quality at all times. These firms allow themselves to be more stringent in quality adherence and position themselves in the eyes of their customers as having products that are "beyond good quality". Companies whose

products have a Diamond mark are perceived to be leaders in the field of quality products in the Kenyan market arena. It is a mark for superior products only that assures buyers that the product is of good quality and also be used as marketing tool for manufacturers. Having a diamond mark increases awareness of quality aspects to all stakeholders and therefore scraps, rework and rejects are also eliminated and minimized. This makes it easier to enter into regional and international markets. The permit to use the mark is valid for a period of three years subjected to satisfactory quality performance and full compliance to other contractual obligation signed between KEBS and the permit holder. As a requirement of any quality management system, it creates room for continuous improvement and also encourages monitoring and reviewing processes ad product quality (Jackson & Ashton, 2012). It will be used in the study to measure the products that have gone through frequent sampling and testing in the laboratory for the purpose of checking whether the products conform to Kenyan standards.

Standardization mark is a mandatory product certification scheme for locally manufactured products that are provided under section 10 of the Standard Act Cap 496, Laws of Kenya. Being a minimum requirement for locally manufactured products, all products sold in Kenya must adhere to these basic standards. This provides fair competition as incidences of substandard and counterfeit products is reduced. The image of companies and their products is maintained thereby building customer confidence. Standardization mark protects customers against products that do not meet the minimum standard. Companies manufacturing products that do not have this Quality mark are considered to be selling illegal products.

1.1.2 Product Performance

Product performance entails the degree of success of new products as well as the financial results of market competition which is reflected in profit or market share (Li & Calantone, 2014).

Griffin and Page (2015) summarised three most common indicator used to measure product performance to comprise market share, profitability and technological prowess for product development and rapid implementation plans to achieve the desired goals.

New products are vital to the success and prosperity of the modern company. Facing new technologies, increasing and global competition, and dynamic market needs (Montoya-Weiss & Calantone, 2014). Thus an understanding of what makes new products successful, what practices and characteristics distinguish the winners is essential in order to provide the management insights needed in the decades ahead. Rosenthal and Tatikonda (2013) argue that it is important to consider different types of new product success, and indeed move towards a typology of performance scenarios. First, new product success can be measured in a multitude of ways.

Performance is described as achievement of an organisation in relation to its set goals (Tharao, 2009). During early days of manufacturing, the concept used in measuring performance and quality was through inspection whereby products were either accepted or rejected. Products were examined, measured and compared against requirements to check their conformance. Nonconforming products were scraped, reworked or sold at lower prices. Product performance in this study was measured in terms of quality, customer adoption and usability.

1.1.3 Food and Beverage Manufacturing Firms in Kenya

Food and Beverage Manufacturing Companies (FBMCs) in Kenya are categorized beneath the manufacturing industry. The segment contributes about 10% of Gross Domestic Product (GDP) (KIPPRA, 2013). Performance improvement of this sector is of great interest to all stakeholders. The sector is projected to direct the socioeconomic progression of the nation (KIPPRA, 2013). FBMC sector in Kenya is a key prolific ventures of the economy selected in Vision 2030

economic blueprint to spur growth and prosperity because of its immense potential for poverty reduction, jobs establishment and wealth creation (Kenya-Vision 2030, 2007). Firms in this sector have embraced development of strategies for performance improvement (Ansoff & MacDonnell, 1990).

The Food and Beverages Sector is the largest sector and constitutes 22 percent of the total KAM membership (KAM, 2014). This contributes to 28.7 percent of the Gross Domestic Product. This sector includes alcoholic beverages and spirits, bakes and millers, cocoa, chocolates and sugar confectionery, dairy products, juices, water, carbonated soft drinks, slaughtering, preparation and preservation of meat, tobacco and vegetables oils.

1.2 Statement of the Problem

Consumer demand for greater product innovation and transparency, ever-increasing quality and compliance pressures, tighter profit margins, new channel opportunities, and a dynamic workforce are just some of the factors that are shifting market dynamics to the point where food and beverage manufacturers need to take a fresh approach to how they do business (Mintzberg, Ahlstrand & Lampel, 2015). Otiato (2015) observe that the Kenyan government is encouraging companies to adopt international standards, however, the increasing incidences of food-related disorders have prompted consumers to bring about vital changes in their diet and lifestyle, making them more health-conscious than ever and the rising concerns about product traceability has become one of the pivotal challenges in food and beverage industry thus affecting their product performance.

ISO 9001 provides an effective way of implementing Quality Management System (QMS) causing products to conform to requirements (Quazi, 2012). In Kenya, KEBS, the organisation in charge of quality standards encourages the use of various product quality certification schemes;

ISO 9001:2008, Diamond Mark and Standardization mark as a strategy in providing quality products to customers. However, it does not consider the cost implication involved in the implementation which is key, considering the fact that Kenya is still in the infancy stage in quality management. For these schemes to be helpful in manufacturing of quality products, the right decisions need to be made to reduce costs as well achieve the improved product quality objective. ISO published the ISO 15161:2000 standard for the implementation of ISO 9001 in the food (Hernadez, 2006) unfortunately there is no instrument to measure effectiveness of ISO 9001 in the food sector. It is therefore crucial for manufacturer to have a clear understanding of how the existing quality programmes can impact their product quality performance by measuring the product quality performance against the Kenyan standard in the food and beverage sector.

Muteshi, Awino, Kitiabi and Pokhariyal (2017) study examined firm-Level Strategy and Performance of Food and Beverage Manufacturing Companies in Kenya and found that firm-level strategy on combined organizational performance was statistically significant. Ochieng, Muturi and Njihia (2015) study investigated the impact of ISO 9001 implementation on organizational performance in Kenya and established that the successful implementation of quality programs depends on workforce. Wiengarten, Humphreys, Onofrei and Fynes (2017) study examined the adoption of multiple certification standards: perceived performance implications of quality, environmental and health and safety certifications and found that that companies that are simultaneously ISO 9001, ISO 14001 and OHSAS 18001 certified are significantly better performers with regard to environmental and occupational health and safety. Therefore, this study sought to determine the influence of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to investigate the influence of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

1.3.2 Specific Objectives

i. To determine the influence of ISO 9001:2008 on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

ii. To determine the influence of Diamond mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

iii. To determine the influence of Standardization mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

1.4 Research Questions

i. What is the influence of ISO 9001:2008 on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

ii. What is the relationship between Diamond mark and product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

iii. To what extent does Standardization mark influence product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

1.5 Significance of the Study

Although there are numerous studies examining elements that constitutes quality management, effects of adopting and ISO quality assurance scheme, impact of ISO certification on the

performance and profitability, there was need for studying actual performance of product manufactured that have adopted expensive product certification schemes vis a vis those only meeting the basic legal requirement of the standardization mark.

The study showed how product certification schemes affects product quality performance of products from companies adopting the. This way, manufacturers would be able to make decisions on the best strategies to implement that would guarantee quality products. It would also help manufacturers decide on which product certification schemes to adopt using the scarce resources available. Customers would be unlighted as well on these product certification schemes and how different they are on quality performance of products. The study would open a gap to other scholars.

1.6 Scope of the Study

This study focused on how ISO 9001:2008, diamond mark and standardization mark influences product performance. The unit of analysis was food and beverage manufacturing firms in Nairobi City County, Kenya and the unit of observation was managers and support staff. Data was collected using questionnaires. Descriptive survey research design was used. The study focused on product performance for the last 5 years (2014 – 2018).

1.7 Limitations of the Study

The study was limited by fear of respondents to disclose relevant information for the study. However, the researcher overcame this by assuring the respondents of strict confidentiality of any information disclosed. Some managers declined to disclose sensitive information on how they manage quality standards due to competition and confidentiality concerns. To overcome this, the researcher explained the purpose of the study to them.

1.8 Organization of the Study

This project is organized as follows: the foregoing chapter one presents the background to the study, problem statement, research objectives and research questions, scope of the study, significance of the study, and the limitations the researcher will encounter in the course of the study. Chapter two presents related literature on positioning strategies and organizational growth. Chapter three details the methodology that was employed in the study. Chapter four addressed the research findings and discussions and chapter five covered summary of the findings, conclusions, recommendations for policy and practice and suggestions for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter comprise of theoretical review, empirical review, summary of literature reviewed and research gaps and conceptual framework.

2.2 Theoretical Review

This section covers theories that were used in guiding the study. These theories include; quality management theory and dynamic capability theory and resource based view theory.

2.2.1 Quality Management Theory

The theory of Quality Management (QMT) was advanced by Deming (1986). The theory postulates that a feature of quality management doctrine is that it places responsibility for manufacturing organizations squarely at the door of top management (Deming, 1986). The theory states that the management is responsible for the systems, and that it is the system that generates 80 percent of the problems in firms (Hill, 1995). Deming (1986) noted that no quality management system could succeed without top management commitment; it is the management that invests in the processes, creates corporate culture and also selects suppliers and develops long-term relationships. Deming's Quality Improvement Theory provides business with a plan to eliminate poor quality control issues through effective managerial techniques.

The theoretical essence of the Quality Management Theory focused on quality concerns in the creation of an organizational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to performance (Anderson, Potocnik & Zhou, 2014). Oakland (2014) stressed that the responsibilities of top management should take the lead in changing processes and systems. Leadership plays a crucial role in ensuring the success of quality management because it is the top management'

responsibility to create and communicate the vision to move the firm toward performance improvement.

Deming's Quality Management Theory is relevant to study in that quality management practices is a quality management system which can be used to enhance quality of products and services through continuous improvement and which organizations can use to realize performance. TQM is presented as a holistic approach which requires customer orientation, empowered people, attention to the process, a good quality system, and continuous improvement (Deming, 1986). Increasingly, food and beverage companies in Kenya are recognizing the strategic importance of quality and quality management that effective quality management can enhance their competitive abilities and provide strategic advantage.

2.2.2 Dynamic Capability Theory

Teece and Pisano (1994) propose dynamic capability theory as the subset of the competences/capabilities which allow the firm to create new products and processes and respond to changing market circumstance. The dynamic capability theory postulated strengthens the Resource Based View (RBV) which emphasizes on how combinations of resources and competences can be developed, deployed and protected. The factors that determine the essence of a firm's dynamic capabilities are the organizational processes where capabilities are embedded, the positions the firms have gained and the evolutionary paths adopted and inherited.

Dynamic capabilities theory examines how firms integrate, build, and reconfigure their internal and external firm-specific competencies into new competencies that match their turbulent environment (Teece, Pisano & Shuen, 2010). The theory assumes that firms with greater dynamic capabilities will outperform firms with smaller dynamic capabilities. The aim of the

theory is to understand how firms use dynamic capabilities to create and sustain a strategies implementation over other firms by responding to and creating environmental changes.

2.2.3 Resource Based View Theory

This study will employ the Resource-Based View (RBT) theory as argued by Wernerfelt (1984). The theory argues that a firm has the ability to achieve and sustain competitive advantage if it possesses resources that are valuable, rare, imperfectly imitable and non-substitutable. Not all resources are strategically relevant within an organization. The goal of an organization is to ensure it has access to and control of valuable resources by developing and securing all the relevant resources either internally or externally.

For the sustainable competitive advantages firms are forced to rely on a multitude of outside suppliers for parts, software, knowhow and sales and in doing so gain access to valuable resources and external capabilities (Langlois, 2010). The argument here fits with the need and factors that lead to a certain response strategy decisions in firms; whether they are cost reduction, new product/services introduction, focus on core competencies or labour flexibility and how they improve organizational performance. Barney (1991) states that, “sustainable competitive advantage is derived from resources that are valuable, rare, imperfectly imitable (due to path-dependence, causal ambiguity, and social complexity), and no substitutable”. A resource-based view of the firm accepts that attributes related to past experiences, organizational culture and competences are critical for the success of the firm.

This theory is relevant to the study because it shows that the food and beverage companies manage their product performance on the basis of their resources and capabilities. The companies resources must, in addition, be valuable, rare, and imperfectly imitable and

substitutable in order to be source of effective management of product quality schemes thus contribute to higher product performance by helping the firm to appropriate the value.

2.3 Empirical Review

This section covers a review of empirical studies that are related to the specific objectives of the study which included ISO 9001:2008, standardization mark and product performance.

2.3.1 ISO 9001:2008 and Product Performance

Husseini, Al-Shami, Fam and Al Derei (2014) study examined the impact of ISO 9001:2008 certification on product performance. A survey was distributed to 340 consumers, while One-Sample Statistics was used to measure the level of customers' satisfaction in four large enterprises. The results showed that the obtaining ISO 9001: 2008 certification has positive effect on consumer satisfaction proxied by (consumer complaints, frequent buying, positive buying trends, quality perceived by consumers and quality provided by companies. However, the study made use of cross-sectional research design which cannot be utilized to establish cause and effect relationships.

Abdulrahman (2015) study investigated the effect of ISO 9001: 2008 Certification on product performance of Hashi Energy Kenya Limited. In order to study whether Hashi Energy Kenya Ltd had achieved operational performance improvement after ISO 9001: 2008 certification, several variables of operational performance were identified for analysis. These were stock days, tank turnaround, order processing time, truck turnaround time, customer delivery time, unit cost and customer complaints handling. The findings of the study revealed that there was significant improvement in operational performance after ISO 9001:2008 certification. However, the study made use of random sampling technique which does not guarantee representativeness of the accessible population.

Psomas, Pantouvakis and Kafetzopoulos (2013) study investigated the impact of ISO 9001 effectiveness on the product performance of service companies. Exploratory factor analyses are applied to extract the latent factors of the indicators of ISO 9001 objectives and performance dimensions. Multiple linear regression analyses are also applied in order to determine the impact of ISO 9001 effectiveness on the performance dimensions of service companies. The findings of the present study confirm the dimensionality of the ISO 9001 effectiveness and reveal its significant contribution to the performance of the service companies. However, the study made use of exploratory research design which disallow making inferences.

2.3.2 Diamond Mark and Product Performance

Seigneur, Schneller, Shiradkar and Schoenfeld (2016) study investigated the effect of diamond wire saw marks on solar cell performance. It was identified that under identical ingot sawing conditions the diamond wire make had an impact on the resulting cell performance. Several cells exhibited defects that remained with the cell even after the saw damage etching process. These defects were investigated in terms of their impact on various solar cell performance parameters. However, the made use of cross-sectional research design which cannot be utilized to establish cause and effects relationships.

Kutschke, Rese and Baier (2016) study examined the effects of Locational Factors on product performance of innovation networks in the German Energy Sector. Based on the distinctions in Porter's Diamond Model, the study finds that two locational factors, the quality and quantity of the demand conditions and skilled labour have positive effects. In contrast to the widespread assumption in the literature we could not find evidence for positive impacts on the quality and quantity of the competitive environment. In fact, the effect on performance was negative.

However, it was qualitative study which utilizes small sample hence not appropriate for generalization of findings.

Li (2016) study focused on the investigation of the optical effects of single point diamond machined surfaces and the applications of micro machining. An empirical relationship between the machining conditions and the first order diffraction from the diamond machined surfaces was setup. It has been demonstrated that a low cost and simple manufacturing process for true 3D micro scale structures on nonplanar substrates based on microlenses can be realized. However, the study used purposive and simple random sampling techniques in which both methods are prone to sample bias.

2.3.3 Standardization Mark and Product Performance

Zou, Andrus and Wayne (2017) study examined the influence of standardization of international marketing strategy by firms from a developing country. Links marketing standardization to Colombian firms' export intensity. The study suggests that Colombian firms appear to pursue different degrees of standardization with respect to different dimensions of their international marketing strategy. Also suggests that there are several relationships between marketing standardization and Colombian firms' export intensity, and the nature and strength of each relationship depends on the specific dimension of marketing standardization being examined. However, the study used cross-sectional research design which involves a smaller sample, hence the results cannot be accurately interpreted for a generalized population.

Wang, Wang, Ma and Qiu (2010) study examined the effect of standardization product performance in manufacturing industries in Pakistan. While it is recognized that service providers need to standardize or customize their services, it is unclear how such efforts may

affect customer satisfaction. We hypothesize that standardization and customization may contribute to service satisfaction in a nonlinear fashion, and simultaneous efforts of standardizing and customizing service may not produce synergy in affecting customer perceptions of service. Empirical data collected from a sample of automobile after sale service customers offer considerable support for these hypotheses. However, standardization alone does not influence product performance thus the need for other factors.

Schilke, Reimann and Thomas (2015) study focused on when does international marketing standardization matter to product performance. The authors examine survey data from 489 firms, and their results indicate that the standardization-performance link is significantly stronger for large firms with a homogeneous product offering, high levels of global market penetration, a cost leadership strategy, and strong coordination capabilities. The authors conclude that managers evaluating the adequacy of a standardization strategy should consider the list of contingencies advanced in this research. However, the study used secondary data in which data maybe old and out of date.

2.3.4 Product Performance

O'Dwyer and Ledwith (2018) study investigated determinants of new product performance in small firms. A model was developed addressing determinants of new product and organisational performance. These relationships were explored using data collected from 26 small firms in Ireland. The results indicate that competitor orientation and product launch proficiency are strongly linked to new product performance and organisational performance in small firms. Additionally, they illustrate a lack of significant relationships between performance and customer orientation, interfunctional coordination and product advantage, thus suggesting that the existing large firm models explored may not be fully applicable to small firms.

A study by Storey and Easingwood (2019) examined types of new product performance: Evidence from the consumer financial services sector. Using the results of a large survey of new consumer financial services, this research investigates the benefits that new products bring to a company. Three distinct dimensions of performance are identified as sales performance sales and market share profitability and enhanced opportunities. The study found that highly successful new products must produce multiple benefits. It is also found that approximately half the value derived from the introduction of the new products is derived from company benefits.

2.4 Summary of the Literature Review and Research Gaps

Table 2.1: Summary of the Literature Review and Research Gaps

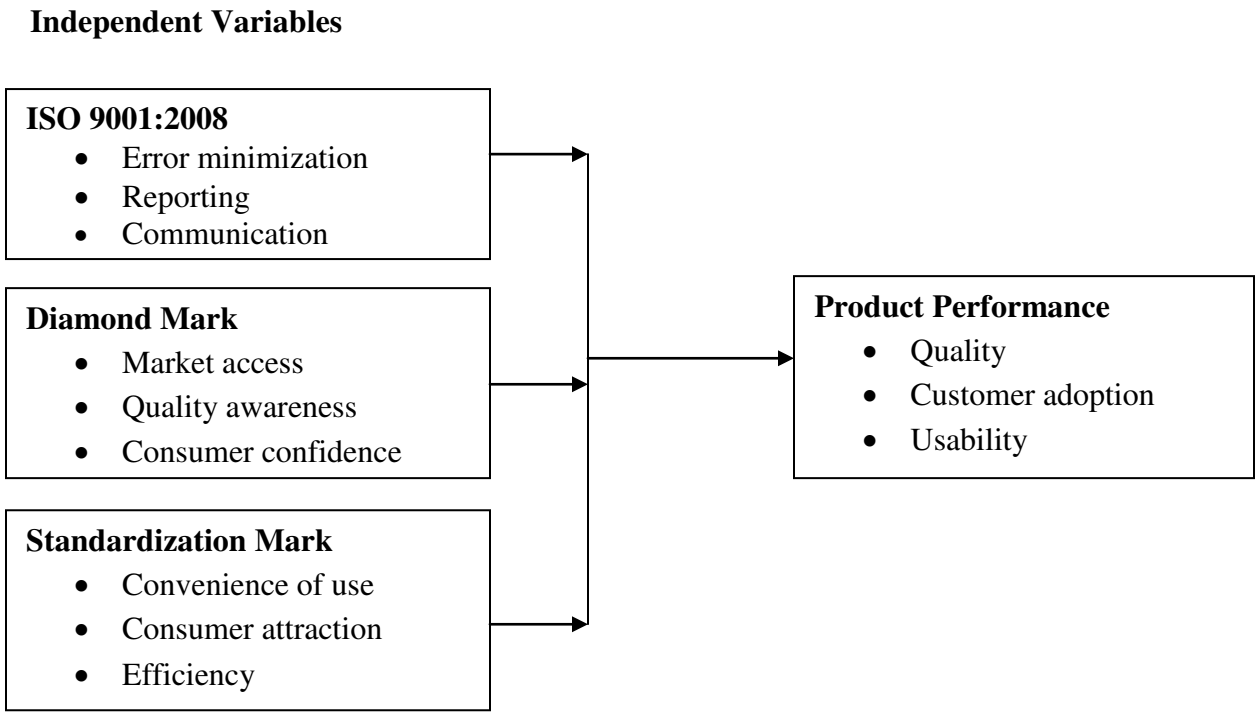
Author	Focus of the Study	Findings	Knowledge gap	Focus of the current study
Husseini *et al.* (2014)	Impact of ISO 9001:2008 certification on product performance	Obtaining ISO 9001: 2008 certification has positive effect on consumer satisfaction	Made use of cross-sectional research design which cannot be utilized to establish cause and effect relationships	The study made use of descriptive research design which results to rich data that lead to important recommendations in practice.
Abdulrahman (2015)	ISO 9001: 2008 Certification on product performance	There was significant improvement in operational performance after ISO 9001:2008 certification	Made use of random sampling technique which does not guarantee representativeness of the accessible population	The current study used probalistic sampling techniques for effective representation of a sample
Psomas *et al.* (2013)	Impact of ISO 9001 effectiveness on product performance of service companies	Dimensionality of the ISO 9001 effectiveness and reveal its significant contribution to the performance of the service companies	The study made use of exploratory research design which disallow making inferences	The study made use of descriptive research design that supports making inferences
Seigneur *et al.* (2016)	Effect of diamond wire saw marks on solar cell performance	Identical ingot sawing conditions the diamond wire make had an impact on the resulting cell performance	Made use of cross-sectional research design which cannot be utilized to establish cause and effect relationships	The study made use of descriptive research design which results to rich data that lead to important recommendations in practice.
Kutschke *et al.* (2016)	Locational factors on product performance	Study finds that two locational factors, the quality and quantity of the demand conditions and skilled labour have positive effects	Qualitative study which utilizes small sample hence not appropriate for generalization of findings	Quantitative study which utilizes a large sample hence appropriate for generalization of findings

Li (2016)	Investigation of the optical effects of single point diamond machined surfaces and the applications of micro machining	A low cost and simple manufacturing process for true 3D micro scale structures on nonplanar substrates based on microlenses can be realized	The study used purposive and simple random sampling techniques in which both methods are prone to sample bias	This study used stratified sampling method to guarantee effective representation of the population.
Zou *et al.* (2017)	Standardization of international marketing strategy by firms from a developing country	Colombian firms appear to pursue different degrees of standardization with respect to different dimensions of their international marketing strategy	Cross-sectional research design which involves a smaller sample, hence the results cannot be accurately interpreted for a generalized population	Descriptive survey research design was used which enabled the researcher to collect a large amount of data for detailed analysis
Wang *et al.* (2015)	Standardization and customization on product performance	Standardization and customization may contribute to service satisfaction in a nonlinear fashion,	Standardization alone does not influence product performance thus the need for other factors	The current study focused on other factors apart from standardization that influence product performance.
Schilke *et al.* (2015)	Does international marketing standardization matter to product performance?	The standardization-performance link is significantly stronger for large firms with a homogeneous product offering	The study used secondary data in which data maybe old and out of date	The study used primary data in which the researcher is able to collect up-to-date information

Source: Researcher (2019)

2.5 Conceptual Framework

The conceptual framework is the researcher's interpretation of how the individual variables in his/her analysis interact with each other (Mugenda & Mugenda, 2003). Therefore, it defines the variables needed in the research. The following is framework describes how the variables under study relate to each other.



Source: Researcher (2019)

Figure 2.1: Conceptual Framework

Figure 2.1 shows the relationship between variables. The independent variables include ISO 9001:2008, diamond mark and standardization mark. The dependent variable is the product performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter comprises of the research design, target population, sampling design and sample size, data collection instrument, pilot study, data collection procedure, data analysis and presentation and ethical consideration.

3.2 Research Design

This study adopted a descriptive research design for the study. Saunders, Lewis and Thornhill (2009) assert that the descriptive design is a process of collecting data in order to test hypothesis or to answer the questions of the current status of the subject under study. Descriptive research design was employed because is one of the most widely used non-experimental research designs across disciplines to collect large amounts of survey data from a representative sample of individuals sampled from the targeted population. A descriptive research design also involves a field survey where subjects are observed in their natural set ups without manipulation of the environment.

3.3 Target Population

Target population is defined by Orodho (2005) as a large population from which a sample population is selected. The unit of analysis was food and beverage manufacturing firms in Nairobi City County, Kenya and the unit of observation was 65 respondents comprising of quality assurance managers and support staff as shown in Table 3.1.

Table 3.1: Target Population

Category	Population
Managers	5
Support staff	60
Total	**65**

Source: Nairobi City County, HRM Report of 2019

3.4 Sampling Design and Sample Size

Gay (2002) indicates that a representative sample of the accessible population is selected because of the constraints in involving the whole population. A cluster sampling was carried out to sample the respondents. Mugenda and Mugenda, (2003) observe that in a situation where the study population is small there is no need to sample otherwise the total population should be studied. Therefore, a census of 65 respondents was carried out.

3.5 Data Collection Instruments

Questionnaires were used as data collection instruments which were administered to all the respondents. Creswel (2013) observe that questionnaires have the capability to obtaining large data from the field and it is easier to interpret and analyse the data. A likert scale questionnaire was used in closed ended questions and also the questionnaires bear open ended questions to give the respondents a chance to air more views on the variables.

3.6 Pilot Study

Pilot study is a small test involving a small number of respondents to assist the researcher in checking for the quality of the questionnaires and identify any weaknesses before going for the final data collection process (Orodho, 2005). Questionnaires will be piloted to 2 managers and 8 support staff from the department of quality assurance. These respondents will not be included in

the final data collection process. The questionnaires were piloted to make sure that any error or missing items are identified and addressed so as to make sure they are valid and reliable.

3.6.1 Validity of the Instruments

Validity test involves checking whether the data collection instrument gave data regarding the intended objective of the study (Orodho, 2005). There are three types of validity tests; content, criterion and construct validity. Content validity refers to the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure. Therefore, content validity was evaluated by involving the supervisor as the research expert to rate the questionnaire items based on their relevance and representativeness to the content domain. Criterion validity measures how well one measure predicts an outcome for another measure. In this regard, criterion validity was used to assess whether a test reflects a certain set of abilities. Construct validity involves the assessment of the degree to which a measure correctly measures its targeted variable. Therefore, evaluation of construct validity required that the correlations of the measure be examined in regard to variables that are known to be related to the construct.

3.6.2 Reliability of the Instruments

Reliability as described by Cooper and Schindler (2011) is carried out to test the internal consistency of the questionnaire. Cronbach's alpha coefficient was utilized to obtain a correlation coefficient of the test scores. Mugenda and Mugenda (2003) indicates that test scores range between 0 to 1 and the instrument is considered reliable if the test score is closer to 1. Therefore, this study targeted a coefficient of 0.7. The instruments were administered twice to the same group during piloting. This was done at intervals of one week. The results of reliability tests are presented as follows:

Table 3.2: Reliability Tests Results

Variable	Alpha (α) Coefficient	Remarks
ISO 9001:2008	0.806	Reliable
Diamond mark	0.785	Reliable
Standardization mark	0.796	Reliable
Product Performance	0.821	Reliable
Total	**0.802**	**Reliable**

Source: Pilot Study (2019)

Table 3.2 indicate that product performance had the highest alpha value at α=0.821 followed by ISO 9001: 2008 at α=0.806, standardization mark at α=0.796 and diamond mark at α0.785. This meant that all the variables had the value of alpha coefficient meaning that the instruments were reliable which is in line with Mugenda and Mugenda (2003) who assert that a coefficient value of more than 0.7 shows that the data collection tool is reliable.

3.7 Data Collection Procedure

The organization management was contacted to permit the research to carry out the study within the organization. The researcher personally administered the questionnaires to the support staff and conduct interview schedules to the selected managers. The respondents were given two weeks for filling in the questionnaires. The researcher made a visit to the respondents to remind them on the importance of filling the questionnaires so as to ensure high response rate.

3.8 Data Analysis and Presentation

Data collected from the questionnaires was organized into a meaningful format and coded for easy analysis. Descriptive statistical analysis such as mean and standard deviation used to analyze quantitative and presented in terms of tables, frequencies, graphs and charts. This was

made possible by use of Statistical Package for Social Sciences (SPSS) version 20.0. Multiple regression was used to determine the relationship between variables. The multiple regression equation took the form as expressed below.

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Whereby, **Y** = Product performance

$\mathbf{X_1}$= ISO 9001:2008

$\mathbf{X_2}$= Diamond mark

$\mathbf{X_3}$= Standardization mark

$\boldsymbol{\beta_1, \beta_2}$ **and** $\boldsymbol{\beta_3}$ = Beta coefficients.

$\boldsymbol{\varepsilon}$ = error term

3.9 Ethical Consideration

Kenyatta University graduate school provided an authorization to conduct this study by issuing approval letter. The research permit was also sought from the National Commission for Science and Technology (NACOSTI). Prior to data collection exercise, respondents were informed that there would be no direct benefits or losses incurred if they fail to participate in the study. The study addressed the issue of confidentiality by assuring participants that the information they provide would not be shared with third parties and would only be meant for academic purposes. The respondents were also informed that they were free to stop participating in the study at any stage if they are not willing to continue.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of data collected from the field. The response rate is given first followed by background information of the respondents, descriptive statistics and regression analysis.

4.2 Response Rate

The response rate was analyzed on the basis of the proportion of the questionnaires that were duly filled in and returned to the researcher as presented in Table 4.1.

Table 4.1: Response Rate

Category	Frequency	Percentage
Respondent	59	90.8
Not Respondent	6	9.2
Total	**65**	**100**

Source: Research Data (2019)

The results in Table 4.1 shows that out of 65 respondents that were served with the questionnaires 59 filled in and returned forming a response rate of 90.8% and those respondents who did not respond accounted for 9.2%. Mugenda and Mugenda (2003) contend that a response rate of 50% and above is adequate for analysis and reporting of statistical inferences. Therefore, the response rate 90.8% was sufficient for making conclusions and generalization from the sample measures.

4.3 Background Information

The study sought to establish the background information of the respondents based on gender, age, work experience and the level of education. The findings are presented as follows;

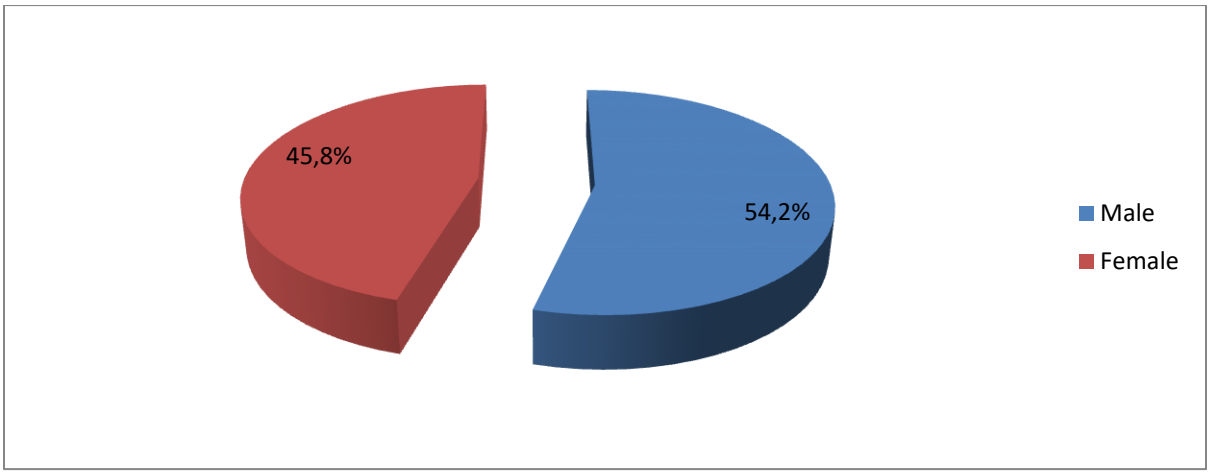


Figure 4.1: Respondents' Gender

Source: Research Data (2019)

According to the findings in Figure 4.2, majority of the respondents were male as demonstrated by a proportion of 54.2%. However, it was noted female respondents constituted 45.8% of the questionnaires that were analyzed. These results indicate that there was a fair representation of both genders in this research.

Table 4.2: Respondents' Work Experience

Years	**Frequency**	**Percentage**
Below 2	7	11.9
2 to 5	6	10.2
6 to 9	17	28.8
10 and above	29	49.2
Total	**59**	**100**

Source: Research Data (2019)

Table 4.2 shows that a majority of respondents comprising 49.2% had worked with food and beverage manufacturing firms in Nairobi City County, Kenya for a period of 10 years and above. On the other hand 10.2% had had for 2 to 5 years. These results confirm that the employees involved in this study had necessary experience to provide the information that was of interest to the researcher.

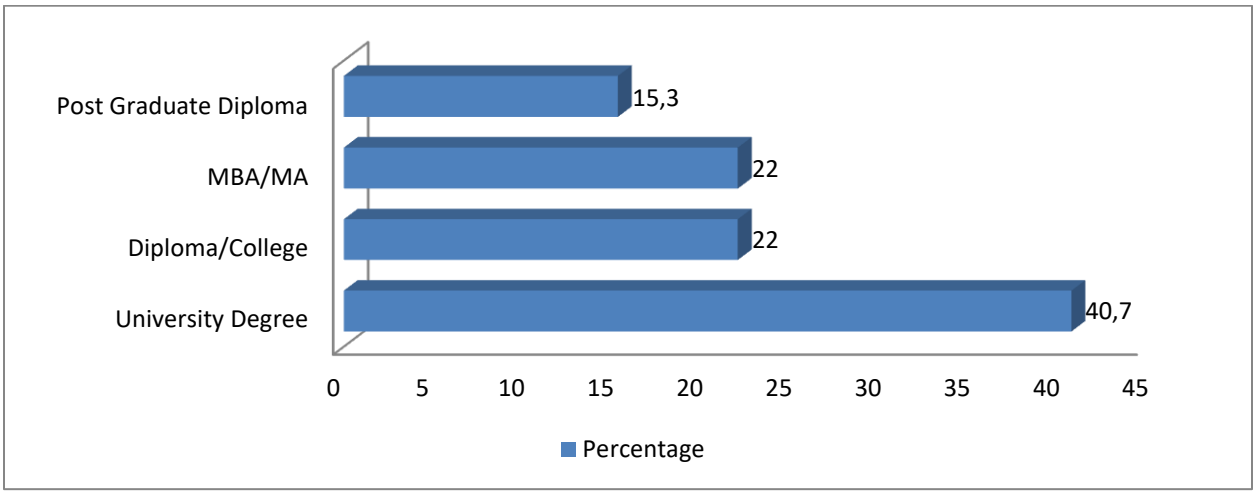


Figure 4.2: Respondents' Level of Education

Source: Research Data (2019)

The results displayed in Figure 4.2 show that majority of the respondents had attained the first degree as their highest level of education at 40.7% whereas the respondents with Post Graduate Diploma as their highest level of education comprised the smallest proportion at 15.3%. The rest of the respondents had attained either a diploma or a Master's Degree level of education at 22.0% respectively. In this case, the respondent had the requisite level of literacy to participate in the study and provide the information of interest to the researcher.

4.4 Descriptive Analysis

Descriptive statistics such as means and standard deviations were used to present that quantitative data with the use of Statistical Package for Social Sciences (SPSS) version 17.0. It was based on study variables which were ISO 9001:2008, Diamond mark, Standardization mark and product performance. Responses were rated as Strongly Agree (SA) = 5, Agree (A) =4, Neutral (N) = 3, Disagree (D) =2, and strongly Disagree (SD) = 1 while M= Mean and std.Dev = Standard Deviation.

4.4.1 ISO 9001:2008

The study sought to determine the influence of ISO 9001:2008 on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The results of the findings are shown in Table 4.3.

Table 4.3: ISO 9001:2008

	SA	A	N	D	SD		
Statement	**%**	**%**	**%**	**%**	**%**	**M**	**Std.Dev**
A certified ISO 9001:2008 quality management system increases the quality of organizational services and raises your staff's awareness.	56.5	18.8	0.0	18.8	5.9	4.01	1.367
A certified ISO 9001:2008 quality management system ensures clear processes and (communication) structures, tasks and responsibilities throughout the entire organisation	29.4	49.4	1.2	20.0	0.0	3.88	1.051
A certified ISO 9001: 2008 quality management system gives a positive company image which makes it able to outperform their rivals	60.0	18.8	0.0	8.2	12.9	4.05	1.455
The organization is able to attach great importance to quality and that you have it checked regularly by an independent party.	55.3	42.4	0.0	2.4	0.0	4.51	0.629
A certified ISO 9001:2008 quality management system ensures that the organization achieves higher operating efficiency	63.5	27.1	0.0	4.7	4.7	4.45	0.958
Aggregate Score	**52.9**	**31.3**	**0.2**	**10.8**	**4.7**	**4.18**	**1.092**

Source: Research Data (2019)

The results in Table 4.3 indicate that the respondents agreed that ISO 9001:2008 influences product performance in food and beverage manufacturing firms in Nairobi City County, Kenya with a mean of 4.18 and standard deviation of 1.092. This was strongly agreed by 52.9%, 31.3% agreed, 10.8% disagreed, 4.7% strongly disagreed and 0.2% neutral. These findings concur with the findings of Husseini *et al.* (2014) study that investigated the impact of ISO 9001:2008 certification on consumer satisfaction and the results showed that the obtaining ISO 9001: 2008 certification has positive effect on consumer satisfaction proxied by (consumer complaints, frequent buying, positive buying trends, quality perceived by consumers and quality provided by companies.

The mean of 4.51 indicates that the respondents strongly agreed that the organization is able to attach great importance to quality and that you have it checked regularly by an independent party with a significance variance of 0.629. This was strongly agreed by 55.3%, 42.4% agreed and 2.4% disagreed. These findings agree with the findings of Abdulrahman (2015) study that revealed that there was significant improvement in operational performance after ISO 9001:2008 certification.

The respondents strongly agreed that a certified ISO 9001:2008 quality management system ensures that the organization achieves higher operating efficiency as shown by mean of 4.45 and a standard deviation of 0.958. This was strongly agreed by 63.5%, 27.1% agreed, 4.7% disagreed and strongly disagreed respectively. These findings concur with the findings of Psomas *et al.* (2013) study that investigated the impact of ISO 9001 effectiveness on the performance of service companies and confirm the dimensionality of the ISO 9001 effectiveness and reveal its significant contribution to the performance of the service companies.

The mean of 3.88 indicates that the respondents agreed that a certified ISO 9001:2008 quality management system ensures clear processes and (communication) structures, tasks and responsibilities throughout the entire organisation with a significance variance of 1.051. This was agreed by 49.4%, 29.4% strongly agreed, 20.0% disagreed and 1.2% neutral. These findings agree with the findings of a study carried out by Husseini *et al.* (2014) in which the results showed that the obtaining ISO 9001: 2008 certification has positive effect on consumer satisfaction proxied by (consumer complaints, frequent buying, positive buying trends, quality perceived by consumers and quality provided by companies.

4.4.2 Diamond Mark

The study sought to determine the influence of Diamond mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The results of the findings are shown in Table 4.4.

Table 4.4: Diamond Mark

	SA	A	N	D	SD		
Statement	**%**	**%**	**%**	**%**	**%**	**M**	**Std.Dev**
Diamond mark speeds up release of imports	41.2	34.1	12.9	8.2	3.5	4.01	1.096
Diamond mark improves market access	35.3	49.4	4.7	4.7	5.9	4.04	1.063
Diamond mark promotes competitiveness	38.8	55.3	3.5	2.4	0.0	4.31	0.655
Diamond mark raises level of quality awareness	36.5	49.4	11.8	2.4	0.0	4.20	0.737
Diamond mark enhance consumer confidence	45.9	44.7	0.0	5.9	3.5	4.24	0.984
Aggregate Score	**39.5**	**46.6**	**6.8**	**4.7**	**2.6**	**4.16**	**0.907**

Source: Research Data (2019)

The findings in Table 4.4 indicates that the respondents agreed that diamond mark influences product performance in food and beverage manufacturing firms in Nairobi City County, Kenya with a mean of 4.16 and standard deviation of 0.907. Majority (46.6%) of the respondents agreed, 39.5% strongly agreed, 6.8% neutral, 4.7% disagreed and 2.6% strongly disagreed. This

is in agreement with Seigneur *et al.* (2016) study which identified that under identical ingot sawing conditions the diamond wire make had an impact on the resulting cell performance.

The mean of 4.31 indicates that diamond mark promotes competitiveness as indicated by standard deviation of 0.655. This was agreed by 55.3% of the respondents, 38.8% strongly agreed, 3.5% neutral and 2.4% disagreed. These findings concur with the findings of Kutschke *et al.* (2016) study that examined the effects of Locational Factors on the Performance of Innovation Networks in the German Energy Sector and found that two locational factors, the quality and quantity of the demand conditions and skilled labour have positive effects.

The mean of 4.24 indicates that diamond mark enhance consumer confidence with a significance variance of 0.984. This was strongly agreed by 45.9% of the respondents, 44.7% agreed, 5.9% disagreed and 3.5% strongly disagreed. These findings concur with the research done by Li (2016) that focused on the investigation of the optical effects of single point diamond machined surfaces and the applications of micro machining and demonstrated that a low cost and simple manufacturing process for true 3D micro scale structures on nonplanar substrates based on microlenses can be realized.

4.4.3 Standardization Mark

The study sought to determine the influence of standardization mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The results of the findings are shown in Table 4.5.

Table 4.5: Standardization Mark

Statement	SA %	A %	N %	D %	SD %	M	Std.Dev
Standardized goods and services promote the convenience of use for the consumer	43.5	47.1	8.2	1.2	0.0	4.33	0.679
Standardized goods and services attracts consumers on the basis of consistent quality	50.6	42.4	5.9	1.2	0.0	4.42	0.661
Uniformity and consistency of products are cost-effective and increases the efficiency of production	36.5	34.1	11.8	4.7	12.9	3.76	1.342
Standards provide consumers with greater assurance that the various components they purchase will be easy to use	30.6	31.8	15.3	7.1	15.3	3.55	1.393
Consumers benefit from efforts to make standardized products stand out in the marketplace	68.2	12.9	0.0	18.8	0.0	4.31	1.165
Aggregate Score	**45.9**	**33.7**	**8.2**	**6.6**	**5.6**	**4.07**	**1.048**

Source: Research Data (2019)

The findings in Table 4.5 indicate that the respondents agreed that standardization mark influences product performance in food and beverage manufacturing firms in Nairobi City County, Kenya with a mean of 4.07 and standard deviation of 1.048. This was strongly agreed by 45.9% of the respondents, 33.7% agreed, 8.2% neutral, 6.6% disagreed and 5.6% strongly disagreed. This is in line with Zou *et al.* (2017) study that examined the influence of standardization of international marketing strategy by firms from a developing country and suggests that there are several relationships between marketing standardization and Colombian firms' export intensity, and the nature and strength of each relationship depends on the specific dimension of marketing standardization being examined.

The mean of 4.42 indicates that the respondents strongly agreed that standardized goods and services attract consumers on the basis of consistent quality with a significance variance of 0.661. This was strongly agreed by 50.6% of the respondents, 42.4% agreed, 5.9% were neutral and 1.2% disagreed. These findings agree with the findings of Wang *et al.* (2010) study

examined the effect of standardization and customization on service satisfaction and found that standardization and customization may contribute to service satisfaction in a nonlinear fashion, and simultaneous efforts of standardizing and customizing service may not produce synergy in affecting customer perceptions of service.

The mean of 3.55 indicates that the respondents were neutral on the statement that standards provide consumers with greater assurance that the various components they purchase will be easy to use which varied significantly as shown by standard deviation of 1.393. This was agreed by 31.8% of the respondents, 30.6% strongly agreed, 15.3% neutral and strongly disagreed respectively and 7.1% disagreed. This is in line with findings of a research done by Schilke *et al.* (2015) study focused on when does international marketing standardization matter to firm performance and results indicate that the standardization-performance link is significantly stronger for large firms with a homogeneous product offering, high levels of global market penetration, a cost leadership strategy, and strong coordination capabilities.

4.4.4 Product Performance

The study sought to determine the product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The results of the findings are shown in Table 4.6.

Table 4.6: Product Performance

	SA	A	N	D	SD		
Statement	**%**	**%**	**%**	**%**	**%**	**M**	**Std.Dev**
Market share	51.8	42.4	0.0	3.5	2.4	4.38	0.859
Profitability	58.8	17.6	2.4	17.6	3.6	4.11	1.282
Technological prowess	57.6	24.7	9.4	0.0	8.2	4.32	0.954
Aggregate Score	**53.5**	**30.6**	**4.4**	**7.6**	**3.9**	**4.25**	**1.021**

Source: Research Data (2019)

Table 4.6 indicates that majority of the respondents strongly agreed that product quality certification schemes influences product performance in food and beverage manufacturing firms in Nairobi City County, Kenya to a great extent as indicated by mean score of 4.25 and a standard deviation of 1.021. This was strongly agreed by 53.5% of the respondents, 30.6% agreed, 7.6% disagreed, 4.4% neutral and 3.9% strongly disagreed. Griffin and Page (2015) summarised three most common indicator used to measure product performance to comprise market share, profitability and technological prowess for product development and rapid implementation plans to achieve the desired goals.

The mean of 4.38 indicate that majority of the respondents strongly agreed that the organization has increases it market share with a significance variance of 0.859. This was strongly agreed by 51.8%, 42.4% agreed, 3.5% disagreed and 2.4% strongly agreed. According to McDermott (2013) product certification mark is normally found on the product or its packaging and may also appear on a certificate issued by the product certification body.

The mean of 4.32 indicates that the respondents agreed on technological prowess which varied significantly as indicated by standard deviation of 0.954. This was strongly agreed by 57.6% of the respondents, 24.7% agreed, 9.4% neutral and 8.2% strongly disagreed. Rosenthal and Tatikonda (2013) argue that it is important to consider different types of new product success, and indeed move towards a typology of performance scenarios. First, new product success can be measured in a multitude of ways.

4.5 Regression Analysis

Regression analysis was used to model, examine, and explore the relationships between the dependent variable against the four independent variables used for the study. The findings are shown in Table 4.7.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.831[a]	.691	.674	.854	.691	40.903	3	55	.000

Source: Research Data (2019)

The three independent variables (ISO 9001:2008, diamond mark and standardization mark) that were studied, explain 67.4% of the product performance as represented by the adjusted R square. This therefore means that other factors not studied in this research contribute 32.6% of the product performance. Therefore, the study suggests that further studies should be carried out to address this gap.

Table 4.8: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.438	3	29.813	40.903	.000[a]
	Residual	40.087	55	.729		
	Total	129.525	58			

Source: Research Data (2019)

The significance value is 0.000[a] which is less that 0.05 thus the model is statistically significance in predicting how ISO 9001:2008, diamond mark and standardization mark influenced the product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. The F calculated at 5% level of significance was 40.903. Since F calculated is greater than the F critical (p value = 29.813), this shows that the overall model was significant.

Table 4.9: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.592	.994		1.903	.000
	ISO 9001:2008	0.660	.259	2.277	2.546	.001
	Diamond mark	0.535	.326	1.366	3.178	.002
	Standardization mark	0.860	.080	3.882	10.797	.000

Source: Research Data (2019)

According to the regression equation established, taking all factors into account (ISO 9001:2008, diamond mark and standardization mark) constant at zero, product performance in food and beverage manufacturing firms in Nairobi City County, Kenya would be at 59.2%. As per the SPSS generated table above, the regression equation model ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$) was: $Y= 0.592 + 0.660X_1 + 0.535X_3 + 0.664\ X_3$

Where Y= Product performance

X_1= ISO 9001:2008

X_2= Diamond mark

X_3= Standardization mark

The study established that ISO 9001:2008 had a positive and significant effect on product performance by beta value ($\beta= 2.277$, $p < 0.05$). These findings concur with the findings of Husseini *et al.* (2014) study that showed that the obtaining ISO 9001: 2008 certification has positive effect on consumer satisfaction proxied by (consumer complaints, frequent buying, positive buying trends, quality perceived by consumers and quality provided by companies.

The study revealed that diamond mark had a positive and significant effect on product performance by beta value ($\beta = 1.366$, $p < 0.05$). These findings concur with the findings of Kutschke *et al.* (2016) study that found that two locational factors, the quality and quantity of the demand conditions and skilled labour have positive effects.

The study found that standardization mark had a positive and significant effect on product performance by beta value ($\beta = 3.882$, $p < 0.05$). These findings agree with the findings of Wang *et al.* (2010) study that found that standardization and customization may contribute to service satisfaction in a nonlinear fashion, and simultaneous efforts of standardizing and customizing service may not produce synergy in affecting customer perceptions of service.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions, recommendations for policy and practice and recommendations for further studies.

5.2 Summary

The overall purpose of the study was to investigate the influence of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. Product quality certification schemes was conceptualised as ISO 9001:2008, diamond mark and standardization mark. This study adopted a descriptive research design for the study. The study targeted 65 respondents comprising of quality assurance managers and support staff and a census method was done. Questionnaires were used as data collection instruments. Data collected was analysed using both descriptive and regression analysis. The summary of the findings is presented as under:

The study sought to determine the influence of ISO 9001:2008 on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. ISO 9001:2008 was found to have a positive significance on product performance. The organization is able to attach great importance to quality and that you have it checked regularly by an independent party and a certified ISO 9001:2008 quality management system ensures that the organization achieves higher operating efficiency.

The study sought to determine the influence of diamond mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. Diamond mark was found to have a positive significance on product performance. Diamond mark promotes competitiveness and diamond mark enhances consumer confidence.

The study sought to determine the influence of standardization mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. Standardization mark was found to have a positive significance on product performance. Standardized goods and services attract consumers on the basis of consistent quality. Standardized goods and services promote the convenience of use for the consumer and that consumers benefit from efforts to make standardized products stand out in the marketplace.

5.3 Conclusions

On ISO 9001:2008, the study concludes that ISO 9001:2008 provides managers with a tool that is designed to continually improve their business performance. It gives an organization a positive image, raising it up to the level of its competitors or perhaps even a level higher. It ensures clear processes and communication structures, tasks and responsibilities throughout the entire organisation. This increases the involvement of employees, which improves the working atmosphere and reduces the pressure of work. The organization is able to detect and identify problems in good time, which means that it can quickly take steps to avoid the same mistakes in the future.

On diamond mark, the study concludes that diamond mark is a mark of excellence awarded to manufacturers either based locally or abroad which has demonstrated high degree of excellence in product manufacturing and quality. Diamond mark permit holders thus qualify automatically for the standardization mark (SM) without any additional payments. The permit to use the mark is valid for period of three years subject to satisfactory quality performance and full compliance to other contractual obligations signed between KEBS and the permit holder.

On standardization mark, the study concludes that for the organization to acquire the mark, manufactured goods are expected to meet quality requirements as specified in the various

Kenya/Approved Standards. A permit to use a standardization mark is issued to a firm to certify that a particular product conforms to requirements in a standard.

5.4 Recommendations for Policy and Practice

On ISO 9001:2008, the organization should set objectives of the processes and systems on what to do and how to do to deliver results. Implement and control what was planned. Monitor the process through measures and compare those measures to the requirements. Take actions to improve performance of the product. This would mean any actions taken based on the results of inspection and testing.

On diamond mark, the study recommends that the organization should effectively adopt diamond mark and use it as a strategic decision that enables organizations to continuously improve their overall product performance and focus on providing customers with products and services of consistent quality.

On standardization mark, the study recommends that the organization to employ a staff compliment of qualified auditors to cater to all its field of operations in carrying out evaluation and assessment techniques to a high degree of professional competence. In addition, should have independent laboratories having demonstrated ability and a quality system accredited that have been recognized for testing of samples.

5.5 Suggestions for Further Studies

The study aimed at investigating the influence of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya. Therefore, further studies should be carried out in other firms apart from manufacturing firms to see extend to which their performance of products are influenced by product quality certification schemes.

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APPENDICES

Appendix I: Letter of Introduction

The Administrator

Nairobi City County

Nairobi, Kenya

Dear Sir /Madam

Re: Request for Participation in Research Study

I am a postgraduate student at Kenyatta University undertaking a study on Product Quality Certification Schemes and Product Performance in Food and Beverage Manufacturing Firms in Nairobi City County, Kenya as partial requirement for the award of Masters of Business Administration Degree in Strategic Management.

You are hereby requested to participate in the study by giving honest information and not that is study is meant for academic purpose. I am grateful in advance for your cooperation.

Yours Sincerely

Sign…… Date……

Mwanamwaka Mwike Detela

Kenyatta University

Appendix II: Questionnaires

This questionnaire seeks to gather information on the effect of product quality certification schemes on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya.

Instructions:

i. Please tick [√] where appropriate or fill in the required information on the spaces provided

ii. Do not write your name or that of your department anywhere on this questionnaire

Section A: Demographic Data

1. Gender: Male [ ] Female [ ]
2. How long have you worked in the current station?

   Less than 2 years [ ] 2 – 5 years [ ]

   6– 9 years [ ] 10 and above [ ]
3. What is your level of education?

   Diploma/College [ ] University Degree [ ]

   MBA/MA [ ] Post-graduate Diploma [ ]
4. What professional qualifications do you have in quality management?

……

Section B: ISO 9001:2008 on product performance

To what extent do you concur with the following statements concerning the influence of ISO 9001:2008 on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

Use the scale of: **1**=strongly disagree; **2**= disagree; **3**= undecided; **4**= Agree; **5**= strongly agree

Statement	1	2	3	4	5
A certified ISO 9001:2008 quality management system increases the quality of organizational services and raises your staff's awareness.					
A certified ISO 9001:2008 quality management system ensures clear processes and (communication) structures, tasks and responsibilities throughout the entire organisation.					
A certified ISO 9001: 2008 quality management system gives a positive company image which makes it able to outperform their rivals					
The organization is able to attach great importance to quality and that you have it checked regularly by an independent party.					
A certified ISO 9001:2008 quality management system ensures that the organization achieves higher operating efficiency					

Section C: Diamond Mark on Product Performance

To what extent do you concur with the following statements concerning the influence of diamond mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

Use the scale of: **1**=strongly disagree; **2**= disagree; **3**= undecided; **4**= Agree; **5**= strongly agree

Statement	1	2	3	4	5
Diamond mark speeds up release of imports					
Diamond mark improves market access					
Diamond mark promotes competitiveness					
Diamond mark raises level of quality awareness					
Diamond mark enhance consumer confidence					

Section D: Standardization Mark on Product Performance

To what extent do you concur with the following statements concerning the influence of diamond mark on product performance in food and beverage manufacturing firms in Nairobi City County, Kenya?

Use the scale of: **1**=strongly disagree; **2**= disagree; **3**= undecided; **4**= Agree; **5**= strongly agree

Statement	1	2	3	4	5
Standardized goods and services promote the convenience of use for the consumer					
Standardized goods and services attracts consumers on the basis of consistent quality					
Uniformity and consistency of products are cost-effective and increases the efficiency of production					
Standards provide consumers with greater assurance that the various components they purchase will be easy to use					
Consumers benefit from efforts to make standardized products stand out in the marketplace.					

Section F: Product Performance

Statement	1	2	3	4	5
Market share					
Profitability					
Technological prowess					