Original Article

Empirical Analysis of the Effect of Operational Capability on Performance of Food Processing Firms in Nairobi City County, Kenya

[1]Justus M. Kyengo, [2]Stephen M.A. Munthe, [3]Godfrey M. Kinyua

[1,2,3]*School of Business, Kenyatta University, Nairobi, Kenya*

Abstract - *Research Summary: This study sought to investigate the effect of operational capability on performance. The target population of the study was 102 registered Food Processing Firms. The study was anchored on resource-based view theory. The researcher adopted positivism research philosophy and a mix of explanatory and descriptive research designs. Multistage probability sampling was used to select 155 respondents. Primary data was collected using self-administered structured questionnaires. Descriptive statistics were used to summarize the characteristics of the sample, while simple linear regression analysis was used to test the research hypotheses. The study established that operational capability has a positive effect on performance. The findings of the study Underscore the significance of operational capabilities in the value propositions development process and ultimate realization of enhancing organizational performance.*

Managerial summary: Operational capability was found to have a positive effect on the performance of food processing firms in Nairobi City County. It's therefore instructive for management to foster activities and practices that seek to lower the unit cost of production as well introduce new processes that enhance the delivery of services to customers. Relevant policies should also be formulated to guide investment, exploitation of resources, and practices in respect of operational capability.

Keywords - *Competitive Advantage, Food Processing Firm, Strategic Assets, Operational Capability, and Organizational Performance*

I. INTRODUCTION

Organizations play an important role in our daily lives, and indeed their performance represents a key ingredient of the economic development of nations globally. The centrality of performance in enhancing the ability of an organization to realize success in the various strategic objectives areas has made this construct become one of the most domineering themes in management research. In view of this, many scholars and practitioners consider organizations as engines of economic, social, and political progress. The dynamic nature of the environment and competition in the global economy has heightened the need to identify the drivers of organizational performance.

The scope of scholarly activities in search of drivers of organizational performance has been broadened to integrate both tangible and intangibles organizational assets (Gavrea, Ilieş & Stegerean, 2011).

Business organizations continually seek ways of improving their performance to compete and operate effectively and aggressively in the market (Ortega & Maria (2010). A central premise of the resource-based view of the firm is that competition in an industry is fundamentally linked to access, control, and management of an assortment of strategic assets and capabilities (Barney, 2012). Indeed, the key concern of senior management relates to strategic assets that are fundamental for the continued existence and success of firms and for general economic prosperity in the highly competitive and dynamic global market (Mitrega, 2011). Extant literature is replete with evidence that suggests that corporate resources have the potential to enhance the competitive posture of a firm (Gasik, 2011; Rao & Kumar, 2011; Kinyua, Muathe & Kilika, 2015).

On the other hand, Youndt *et al.* (2004) are of the opinion that organizational resources that are strategic in nature and have hallmarks of innovativeness are capable of enhancing corporate performance. The resource-based view (RBV) holds that the stock of assets held by a firm is imperative for building competitive advantage and thus ensuring the strategic survival and success of a firm (Dess, Lumkin, Eisner, Lumpkin & McNamara, 2012). It emphasizes that the stock of resources held by a firm in the form of both tangible and intangible assets has a role in explaining performance heterogeneity in an industry. However, RBV proposes that intangible assets such as information technology capability are dominantly inelastic in supply and are thus not easily transferable across the industry, making them a source of competitive advantage and superior performance in the long run.

The ability to optimize performance with the availability of strategic assets, particularly for an environment characterized by high volatility, heightened competition, short product life cycles, and unpredictable factor and product markets, has been covered in the existing body of management literature (Anantharaman, 2003). This scenario raises significant policy and practical

implications on the need for management of business enterprises to constantly search for newer sources of competitive advantage that can guarantee long-term corporate survival and success. Kelleher and Perrett (2001) consider strategic assets to be amongst the most central resources that can potentially improve and determine an organization's fate. The daily and practical occurrences in an organization show clearly that regardless of the sophistication of modern processes adopted by management, it is not easy for business organizations to grow consistently and efficiently in the absence of an appropriate match between processes and operations and strategic resources (Mitrega, 2011).

The concept of measurement of organizational performance has always been a central concern and focus of scholars in the field of management, particularly because organizational performance is considered the most fundamental criterion for evaluating actions and environments of a business enterprise (Short, McKelvie, Ketchen & Chandler, 2009; Gavrea, Ilieş & Stegerean, 2011; Kinyua, Muathe & Kilika, 2015). In this regard, the existing body of theoretical and empirical literature is replete with evidence of the scholarly effort that has been expended in the pursuit to refine the definitions and measurement of organizational performance. Moreover, the theoretical and empirical literature has presented different thoughts and arguments concerning the concept of organizational performance.

According to a study by Richard, Devinney & Johnson (2009) made a proposition that efficiency and effectiveness of attainment of intended goals and aims can be used to evaluate organizational performance. Pearce and Robinson (2003) considered survival in the market, growth, and profitability as critical economic goals, which can be reliably used to define a company's performance as guided by its strategic direction. Kaplan and Norton (2007) advocated for an integrated framework of measuring performance that emphasized the need for the inclusion of non-financial metrics such as market shares, customer satisfaction, public responsibility, and employees' satisfaction, among others. The position taken by Kaplan and Norton demonstrated that the traditional measurement of performance on the basis of financial metrics was biased and had a retrogressive orientation with no value attached to the current and future operating conditions of an enterprise.

It has been noted that while some extant researchers have opted to use financial indicators or non-financial indicators, others have used integration of both in their measurement of organizational performance. Each stream of researchers has presented a strong case for their choice of indicators for operationalizing and evaluating the performance of organizations. On the one hand, those using financial indicators have contended that finance is a crucial organizational resource that primarily precedes other resources required for pursuing corporate goals and objectives, and thus financial performance exists at all levels of an organization (Richard, 2009).

The researchers using non-financial indicators are of the view that non-financial metrics are relevant for embracing the present and predicting future operating conditions of a business enterprise (Raymond & St-Pierre, 2005, Kinyua, Muathe & Kilika, 2015). However, in this empirical investigation, an integrated approach for evaluating performance that emphasizes financial and non-financial indicators was adopted where the performance of food processing firms was measured using profitability, market share, and customer retention. This position was considered by the researcher so as to leverage the two distinct sets of indicators for evaluating performance as advocated by Kaplan and Norton (2007).

Strategic assets have played deliberate and critical roles in organizations and have substantially helped to create a competitive advantage for improved overall performance (Jabbour & Jabbour, 2009). Prominence in business inside a competitive environment, companies tend to heavily depend on their strategic assets for competitive advantage (Gong, Law & Xin, 2009). In terms of strategic assets and general performance of the organization, the common perception is that dynamic capabilities and flexibility in operations help it to adapt to the vibrant market and general environment (Bustinza *et al.,* 2010).

An organization that creates more value from its products or services than its rival firms is said to have a competitive advantage. This advantage, if sustainable, is dependent on the organization's propensity to acquire, integrating, and customizing its resources in response to the changing preferences and demands of customers and the general market. Therefore, distinct performance is easily perceived through the heterogeneity of resources and capabilities possessed by different firms meaning that possessing a distinct and superior set of capabilities will have a positive impact on an organization's performance (Leventhal & Wu, 2010). According to Gong, Law, Chang, and Xin (2009), the more an organization invests in and builds upon its capabilities at an advantaged point from its competitors, the more its performance ratings escalate higher than those of other industry players.

During strategic planning in the organization, the focus by the firms' decision-makers or management has been on capabilities and how to compete for these. According to Costa, Cool, and Dierick (2013), in the high technology industry, organizations need to work together with dynamic capabilities and collaborative networks, besides developing unique skills using corporate resources to ensure their sustainability. A lot of work has been put in to attain fundamental competencies by developing a unique set of organizational capabilities and establishing existing gaps as opposed to the implementation of traditional strategies that are based on industry positioning and pricing.

According to (Appelbaum 2000; Schuler & Jackson, 2001 & Huselid, 2005), the main competitive factors of the business should be a focus that is taken seriously because of their contribution to the wider global economy. Strategic management experts have for the longest time held that competitive advantage is a key principle in organizational growth considerations (Armstrong, 2009). Slater (2012) contributes that corporate success or failure of the organization results from the link between its capabilities and the challenges it faces in the business environment. He refers to the non-imitable and distinctive capability that consists of associations and pacts that are distinct and found between the organization and its stakeholders. These connections are mainly founded on the organization's image, design (architecture) or innovativeness, or all combined. Zamtskic (2010) adds that when they are put into operation in the firm and eventually released to the market, distinctive capabilities bring about a competitive advantage for the firm.

Capabilities are tangible, and this is founded on their nature. Capabilities are the firm's abilities in utilizing, treating, and advancing its resources for a specific objective. This is derived from the organizational experiences, tacit knowledge, and exclusive combinations of resources. The firm's competitive advantage is determined by its response to the changing landscape in terms of the opportunities that are greatly influenced by its capabilities and processes. The firm's ability to choose the right capabilities to build, to effectively manage them, and maximize their usage or application will hence determine its success or failure (Barney, 2011).

Kotelnikov and Jarachandran (2008) ascertain that to remain competitive and consistently improve on it, the firm must have a competitive advantage that is sustainable. They refer to the seamless working together of the different capabilities and ability to successfully reproduce the capabilities as a sustainable competitive advantage. It is advantageous to the firm as it enables the business to thrive in the midst of competition over a prolonged period.

The environment in which the firm operates affects its performance (Smolny, 2003). Bourgeois (1980) argued that the setting within which the organization operates consists of forces that are beyond the control of firm-level management; thus, it can create both opportunities and threats for firms. In support of this view, Njuguna, 2013; Neneh and Vanzyl (2014) suggested that the external operating environment in which the firm operates can greatly contribute to its performance.

The firm's external operating environment affects its corporate strategic options and defines its competitive situation (Pearce & Robinson 2013). Drawing from this view, there are several factors of an external operating environment that determine the firm performance, which includes:- buyers and suppliers' bargaining power and threats emanating from new entrants, industry entry barriers, and the industrial competition intensity brought by the threat of substitutes (Kim & Lim, 1988; Powell, 1996; Spanos, Zaralis & Lioukas, 2004).

The organizational environment is a market condition that has the potential to make the organization undergo catastrophic upheavals that may lead to sudden changes that substantially alter the trajectories of the entire Food Processing Firms. By extension, the environment can confound the abilities of even the toughest organizations' capacities to adapt and surpass the comprehension of experienced or highly skilled managers (Meyer *et al.,* 2009). An important segment of the organization's environment includes other firms, groups of individuals or associations, and all other forces that form part of the immeasurable collection of elements that exist outside of the organization (Clark, Seng & Whitening, 2011).

As the elements in the external environment rapidly change, the organization is forced to devise entrepreneurial and strategic assets that respond to unpredictable situ and unforeseen situations in order to survive. According to Slater (2012), the two dimensions that measure market condition are dynamism dimension and munificence. The former is measured by the nature and rate of change and the certainty in the determination of the environment, while the latter, for example, munificence, is gauged by the favorability of the surrounding environment. In light of the above, Hosseini and Sheikhi (2012)'s argument that the firm's performance is moderated by environmental conditions is affirmed.

As noted by the Kenya Association of Manufacturers (KAM), food-processing firms are a key driver of economic growth in Kenya, just as is the case in many economies globally (KAM, 2016). To this effect, the Government has favorably responded to the call for the implementation of key infrastructures and improvement of general logistics systems and regional market penetration protocols to support this important segment of the manufacturing sector. However, even with the substantial infrastructural support given to the industry, the Kenya National Bureau of Statistics (KNBS) indicates that food processing firms have been experiencing declining performance in the last three years (KNBS, 2016).

Available statistics from KNBS have shown that the industry grew at 3.5% in 2014, 3.2% in 2015, and 3.01% in 2016 (KNBS, 2016). This implies that the proportion of the contribution of Food Processing firms to the gross domestic product (GDP) has been reducing over time. As a result, they have been notable closures of some of the food process firms such as Kuguru Foods Complex Limited in July 2015, Pecha Food Limited in July 2016, Stawi Food and Fruits Limited in August 2016, and Maz International Limited in March 2017 (KAM, 2017).

The existing body of empirical literature indicates that firms' strategic assets such as operational capability have the potential to improve organizational efficiency and

effectiveness, hence becoming a source of superior performance (Penrose, 1959; Barney, 2007; Wang, 2011). Past researchers (Alharbi, 2015; Ren, Tsai & Eisingerich, 2015; Vicente, Antunes & Malva, 2016; Loice, Bonuke & Kibet, 2017) have identified marketing capability, IT capability, research and development capability, and operational capability as key strategic assets that can improve firm performance.

Pebrianto and Djumhur (2013), in a study involving commercial banks in Southern Kalimantan Province of Indonesia, concluded that information technology capability positively affects performance. However, the purposive sampling technique was used in selecting the respondents implied resulting in a sample that was not representative of the study population. Turulja and Bojgoric (2016) concluded that information technology capability facilitates innovations which in turn influence firms' performance positively. Nevertheless, key assumptions of the empirical model adopted were not tested. Takahashi, Bulgacov, and Giacomini (2016) found out that operational capability mediates the relationship between dynamic capabilities and performance. However, the reliability of the research instrument used was not statistically tested. In view of the research problem and research gap identified, this study sought to investigate the effect of information technology capability on the performance of food processing firms in Nairobi City County, Kenya.

The study was of cross-sectional nature and confined to food processing firms operating within Nairobi City County, Kenya. The study involved operational capability and performance as independent and dependent variables, respectively. Empirical data was collected from five functional areas of the target firms comprising finance, information communication technology, human resource, marketing, and operations in each of the food processing firms. These functional areas were considered to have the relevant information relating to this study. The study was anchored on a resource-based view of the firm. The study used positivism research philosophy and adopted both explanatory and descriptive research designs. The research data was collected for a period of five years, comprising of 2012 to 2016.

II. LITERATURE REVIEW
Penrose (1959) posits that superior performance by the firm is realized when it has full control of its resources. Wernerfelt (1984) further asserts that the way that the organization manages its essential assets and resources affects its overall performance. RBV underscores resources and capability attributes that serve to refine the firm's performance, diversity, and longevity (Morheney & Pandian, 1992).

The theory of RBV presupposes that people are motivated to utilize economic resources available to the maximum possible, and the general economic framework informs the logical choices that a firm makes (Barney,

2007). In a study of the mobile phone industries in Kenya, it was found that RBV theory played a role in evaluating and justifying resources and the capability of the firm. These had the capability to create and maintain the firm's competitive advantage in the sector (Sheehan & Toss, 2007).

There are three main compositions of resources as presented by Barney and Hesterly (2010) as capabilities, competencies, and resources. Resources, as defined in strategic management text, are the stocks of accessible items that the firm possesses. Competencies are the unique, strong points that enable the firm to distinguish its deliverables' quality through technological systems that are built to respond to the needs of the customer. They empower and equip the firm to ably compete with its rivals in the marketplace. RBV has been found to contribute to strategic management due to the prominence of firm-specific resources, which are perceived as key contributors to the firm's competitive advantage and exemplary performance (Mckelvie & Davidsson, 2009; Levesque, 2010; Anderson, 2011).

Mckelvie and Davidsson (2009) contribute that multifaceted skills acquired from knowledge, ability, and experience that empowers the company's management and utilization of resources for performance by mobilizing and setting resources in their rightful and most effective use in the formal processes are what defines capability. On RBV, Lockett, Thompsons, and Morgensrern (2009) share that it illuminates the firm's resources and specific abilities that are responsible for its highest rates of return and elevated performance benefits.

The theory of RBV adds to the ways of helping firm managers to check if elements contributing to positive performance exist or not. Locket, Thompson, and Morgenstern (2009) affirm that Resource-Based View theory helps to bring to the fore elements that contribute towards the positive performance of a firm. This empowers managers to exploit deficiencies in the market to set their firm's performance at a higher level. Managers are then positioned to be able to bring together resources for the sustenance of superior performance. The theory allows the organizational decision-makers to select the most critical strategic inputs to acquire and utilize from the industry. Rouse and Daellenbach (2009) and Kenneth *at el.* (2011), however, argue that RBV oversimplifies organizational reality and it tends to assume a linear non-problematic relationship. Further, the theory does not take into account the aspect of environmental factors which affect a firm's performance.

For competitive advantage and above-average performance, a firm's resources and capabilities should qualify to be valuable, atypical, and not easily replaced. Barney and Hesterly (2010) expound that resources that are valuable advances the firms' performance and that rareness creates ideal competition, especially where resources in the same category are found in only a few of

the firms. Resources that are inimitable are those that would cost too much to duplicate, while resources that are said to be non-substitutable have no alternative to accomplishing the same goal or end-product amongst competing firms.

Barney, Wright, and Kitchen (2001) maintain that every organization has a varied range of resources that are tangible and intangible. Tangible resources are the visible material items that an organization possesses, such as structural facilities, raw materials, and work equipment. On the other hand, organizational attributes like values, processes, networks, and branding that are not included in the typical managerial and/or accounting systems are classed as intangible resources. The authors add that intangible resources are more likely to lead to competitive advantage and good performance than tangible resources.

III. EMPIRICAL LITERATURE REVIEW

Loice, Bonuke, and Kibet (2017) conducted an empirical study on the effect of supply chain operational capabilities on the relationship between absorptive capacities and the performance of manufacturing firms in Nairobi County. Data was gathered from the management team in the marketing department of registered manufacturing firms in Nairobi County. The results of bivariate correlation analysis showed there that there was a strong positive linear relationship between operational capabilities and firm performance was significant. The researchers concluded that operational capabilities have a positive contribution to firm performance. Diagnostic tests for the assumption of the linear regression model were not performed.

Takahashi, Bulgacov, and Giacomini (2016) investigated the effect of Dynamic capabilities and operational capabilities on performance. In this study, operational capabilities were conceptualized as an intervening variable. The researchers observed that operational capabilities enable business enterprises to execute a task on an ongoing basis, using the same technique on the same scale to support existing products for the same consumer population. The study was quantitative in approach and was carried out through the use of a questionnaire survey. In this study, only Primary data was gathered and analyzed without making the requisite cross-references with secondary data in order to validate the empirical data. Notably, the research instrument was tested for validity, but the test of internal consistency of the items measuring individual research variables was not performed, and thus, the reliability of the questionnaire was not confirmed. Using structural equation modeling, the study concluded that operational capability mediates the relationship between dynamic capabilities and performance.

Ahmed, Kristal, and Pagell (2014) undertook a conceptual review of the link between operational and marketing capabilities and firm performance. The results of this conceptual review showed that both marketing and operational capabilities are linked to firm performance. However, the operational capability was found to be more important than marketing capability during economic downturns. This study did not gather requisite empirical data for supporting the performance of robust statistical analysis of the relationship between operational and marketing capabilities and performance. The current study will collect relevant empirical data from the management of food processing firms in Nairobi City County, Kenya.

The extensive review of existing theoretical and empirical literature provided the necessary insight for the development of the conceptual framework presented in Figure 1. In Figure 1, the researchers conceptualized the relationship between the independent and dependent variables adopted in this study. The schematic illustration demonstrates the researcher's expectation that operational capability has an effect on the performance of food processing firms in Nairobi City County, Kenya. The research hypotheses for this study are;

H_a: *Operational capability affect the performance of food processing firms in Nairobi City County, Kenya*

H_o: *Operational capability does not affect the performance of food processing firms in Nairobi City County, Kenya*

The operational capability was measured using the improved cost of production and new processes as the operational indicators. Nevertheless, the indicators of performances of food processing firms comprised profitability, market share, and customer retention.

IV. RESEARCH METHODOLOGY

This study adopted positivism research philosophy which, as observed by Mertens (2005) and Creswell (2009), is appropriate for quantitative studies as it is directed at explaining causes which influence outcomes and provides a basis for prediction and generalization. The study utilized both explanatory and descriptive research designs, specifically cross-sectional surveys as recommended by Saunders, Lewis, and Thornhill (2009). Kerlinger and Lee (2000), Robson (2002), and Saunders *et al.* (2009) explained that the validity of study findings is increased by combining different research designs since they enable triangulation of results.

The study used a descriptive research design to collect data from the study subjects in their natural state. Moreover, the descriptive research design was used to provide information on the characteristics and/or behavior of the sample with respect to statistical measures deriving from the research variables. The explanatory design established the cause-and-effect relationship between information technology and performance.

The target population of this study comprised of food processing firms registered by KAM and located in Nairobi City County, as shown in Table 1. According to

KAM (2017), there are 102 food processing firms in Nairobi City County in Kenya. This was made of 36 large firms, 33 medium and 33 Small firms making 35.2%, 32.4%, and 32.4%, respectively.

The researcher utilized the multistage probability sampling method to select the desired sample size for this study. This type of sampling "divides large populations into stages to make the sampling process more practical" (Mugenda & Mugenda, 2003). In this case, a combination of stratified or cluster and simple random is used to select the required sample size (Mugenda & Mugenda, 2003, Saunders, Lewis, and Thornhill, 2009), as shown in Table 2.

The researcher randomly sampled 30% of the 102 firms; this translated to 31 food processing firms. However, the unit of observation was the key functional area in each firm. The key function areas include Finance, Human resource, marketing, ICT, Operations, internal audit, procurement and supplies, research and development, store. For triangulation purposes, as argued by Saunders, Lewis, and Thornhill (2009), the researchers randomly selected the five functional areas considered to have adequate and relevant information related to this study. The 31 firms and the five functional areas translated to 155 respondents that formed the unit of observation.

Primary data was collected for the purpose of this empirical study through a structured questionnaire. The closed-ended questions in the questionnaire were constructed on a 5-point Likert scale that facilitated quantitative analysis of data, testing of the research hypotheses, and extracting facts and points for the conclusion. The questionnaire was divided into two sections. Section A sought general information about the respondents and consisted of three questions. On the other hand, section B focused on specific information regarding IT capability and performance of food processing firms in Nairobi City County in Kenya. In addition, the researcher gathered secondary data through document review encompassing relevant published sources available from the Kenya Association of Manufacturers, including the KAM Annual Report.

The tests of validity encompassed the face, content, and construct validity of the research instrument. The researcher ensured face validity by soliciting opinions from experts in the field of management. Similarly, content and construct validity were ensured through an extensive review of the existing body of both theoretical and empirical. This provided the basis for revision of the questionnaire and thus enhancing its validity.

A pilot study was carried out where data was collected from eighteen heads of departments in the food processing firms in Nairobi City County. The group of employees involved in the pilot study was excluded from the final research. The pilot study sought to determine the reliability of the questionnaire. Cronbach's Alpha index was computed using STATA software to assess whether the set of items different variables in the research instrument had a good level of internal consistency. The results of the analysis of pilot data for internal consistency are displayed in Table 3.

Table 3 shows the various Cronbach alpha statistics obtained from the analysis of reliability. Notably, the values of Cronbach alpha were 0.892 and 0.914 for performance and IT capability, respectively. It can also be noted from the results of reliability that the aggregate score of Cronbach alpha associated with the twenty items relating to the two research variables was 0.903. Marczyk, DeMatteo, and Festinger (2005) and Field (2009) propose a Cronbach's alpha index of not less than 0.70 as an appropriate measure for demonstrating the reliability of a research instrument. Consequently, the research variables had Cronbach's alpha values that were greater than the recommended threshold of 0.70.

Data collection is an important process for obtaining useful data required for analysis and is subject to empirical research that is guided by theory (Groves *et al.,* 2009). It is the set of information gathered from the targeted units of a study. A research permit was sought from NACOSTI before commencing the data collection exercise. At the food processing firm level, permission was officially requested from the firm management to collect data from their managers. The respondents' consent was requested, and their readiness to be part of the study was recorded formally as confirmation of their corporation and willingness to participate. The researcher used the drop-and-pick method to administer or distribute the questionnaires to each respondent of the study. The investigator was careful to monitor and control this process by ensuring that all issued questionnaires are collected. A register of questionnaires was maintained for this purpose as it provided a clear account of the issued and the duly filled and returned questionnaires, together with the respective dates.

Before processing the responses, the collected data was prepared for statistical analysis. Validation and checking were done after the questionnaires have been received from the field. The collected responses were checked to ascertain their clearness, relevance to the study objectives, legibility, and suitability. Moreover, the questionnaires were edited for completeness and consistency. Coding was done on the basis of the locale of the respondents. Descriptive and inferential statistics were used to analyze collected data that was quantitative; to aid this, STATA version 12 software was used. Under descriptive statistics -percentages, frequencies, means, and standard deviations were calculated and presented in figure and table formats. Analysis of inferential statistics involved the use of simple linear regression analysis. However, as pointed out by Verbeek (2008), it is necessary to test the data for conformity with the assumptions of linear regression before conducting inferential statistics. The researcher, therefore, conducted diagnostic tests such as - test for sample adequacy, outliers test, normality test,

linearity test, homoscedasticity test, multicollinearity test, and auto-correlation test.

The study was guided by the statistical model presented in model 1

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon \ .... \ 1$$

Where;

Y = Performance
X_1 = Operational Capability
B_0 = Beta coefficient for the constant
β_1 = Beta coefficient for the independent variable
ε = Error term

The results of regression analysis were tested for statistical significance using a threshold of 95% level of confidence. The study ensured conformance with ethical research standards throughout the research stages or process. A formal clearance letter from the Graduate School of Kenyatta University research committee and a prerequisite license from NACOSTI shall be obtained. In this study, confidentiality was critical since the information sought is strategic in nature to the food processing firms. Hence, permission was obtained from the firms, and informed consent of the study participants was ensured. These measures enhanced the willingness and objectivity of the respondents. In addition, responses attributed to specific individuals or firms were maintained in strict confidence through the use of codes. As recommended by Mugenda and Mugenda (2003), coding helps to uphold the confidentiality of the information from individuals in the different food processing firms.

Research findings and discussion

The results of analysis of response rate revealed that 110 dully filled-in questionnaires were received from the field, confirming that response and non-response rates were approximately 73 and 37 percent, respectively. The successful response rate of 73.3 percent is well within the acceptable threshold recommended by Mugenda and Mugenda (2008) for facilitating further statistical analysis in order to make generalizations and conclusions. In the views of Mugenda and Mugenda, a response rate of 50.5% is adequate for analysis and reporting; a rate of 60% is good, while a response rate of 70% and over is excellent.

Descriptive statistics

The sample mean and sample standard deviation were utilized by the researcher to arrive at appropriate summary measures for describing the characteristics of the sample. Descriptive statistics were analyzed on the responses obtained from the respondents on the two variables that were at the center of this investigation. The results of this analysis formed the basis for statistical analysis and the making of inferences.

Descriptive statistics were computed to establish the typical behavior and spread of responses with respect to the six statements used to measure operational capability. The results of descriptive analysis displayed in Table 4 reveals that sample mean attributed to individual responses had a small range of values from 4.14 to 4.48, generally approximating to 4.00 on the Likert rating scale that had been utilized for collecting data in this study. These values of mean confirmed that the respondents were typically in agreement that the set of activities represented by the statements on operational capability were indeed performed in food processing firms.

The sample standard deviation for individual responses ranged from 0.549 to 0.607 resulting in variability of 0.13 and 0.14, respectively. These values of variability are low in the context of the spectrum of variability that lies between 0 and 1, and as such, responses from the respondents were closely spread around the sample means.

Furthermore, the aggregate scores for the sample mean and sample standard deviation for operational capability were 4.31 and 0.552, respectively, resulting in a low score of 12.8 percent of the aggregate coefficient of variation. The small coefficient of variation signified that the aggregate responses were close together around the aggregate sample mean. This narrow variability of responses demonstrated that the aggregate sample means adequate for estimating the population mean and was therefore appropriate for making inferences. Similarly, the low variability of responses also confirmed that the set of activities used to measuring operational capability were considered imperative for the performance of food processing firms.

In addition, the researcher conducted an analysis of sample measures using the data on responses to the statement regarding the performance of food processing firms. This analysis yielded sample means and sample standard deviations for individual and aggregate responses, as shown in Table 5. It is seen from the table that the aggregate sample mean and sample standard deviation for profitability food processing firms in the five years that were considered for this survey were 3.36 and 1.11, respectively. The implication of these results is that, on average, the respondents were in agreement that food processing firms made profits of between KES11 and KES20 million between the years 2012 and 2016. The results also revealed that the aggregate sample means and sample standard deviation for market share in the five years under consideration were 4.08 and 0.757. The mean score rounds off to a score of four on the five point-scoring adopted by the study imply that, on average, the respondents concurred that their firms market share ranged between 51 and 75 percent of the market in the five years involved in this survey.

The results that the aggregate sample means score for customer satisfaction was 4.29 with a corresponding

aggregate sample standard deviation score of 0.608. This value of aggregate sample mean approximates a score of 4.00 on the five-point rating scale adopted by the researcher. This implies that, on average, the respondents concurred that prioritizing customer loyalty, customer complaints, the value of customer satisfaction, and the effect of customer retention on increased performance are important in their food processing firms. Moreover, the overall aggregate sample means and sample standard deviation for responses on performance measured on the basis of profitability, market share, and customer satisfaction were 3.88 and 0.842, respectively. Computation of the variability of responses regarding performance yielded a value of 21.7 percent as the coefficient of variability. This level of variability was low, and therefore the sample mean for performance was a stable and reliable estimator of the true (population) mean. The aggregate scores also demonstrated that the activities that were used to indicate performance were practiced in food processing firms.

Test of hypothesis

Simple linear regression analysis was performed using STATA in order to estimate a statistical model for determining the effect of operational capability on the performance of food processing firms in Nairobi City County. To this end, the operational capability was regressed on performance. The results of this statistical analysis are reported in Tables 6. The output of the regression analysis in respect of the estimated model demonstrated that the value of R-squared was 0.4955, which corresponds to a product-moment correlation coefficient of 0.703, implying that there was a strong positive linear relationship between operational capability and performance. Notably, the value of adjusted R-squared, which essentially represents the coefficient of determination, was 0.4762 percent. Thus, the estimated linear model accounted for 47.62 percent variation in performance of food processing firms in Nairobi City County, Kenya.

Similarly, the output of multivariate linear analysis relating to the F-statistic showed that the statistical model that was estimated sufficiently fitted the set of data observed from the field. Generally, if the calculated F value in a test is larger than the critical F statistic, the null hypothesis is rejected. Conversely, where the calculated probability is less than the level of significance adopted, the null hypothesis is rejected. The value of F-statistic (4, 105) for the estimated linear model was 25.8 at a level of significance of 0.000, which is less than the p-value of 0.05 that had been chosen as the statistical threshold for inferences at a 95% level of confidence. Consequently, the linear regression model that was estimated provides a good fit for the observed data. In this case, the coefficient of multiple determination that indicates the explanatory power of operational capability on the performance of food processing firms did not occur by chance and, therefore, can be attributed to the independent variable chosen for this study.

The output of the regression coefficients provides information on the parameters regarding the y-intercept and slopes of the regression line corresponding to the predictor variable. The parameters of the model signified by the beta coefficients are, in essence, a representation of the actual effect of operational capability on the performance of food processing firms in Nairobi City County, Kenya. The results of regression coefficients displayed in Table 6 were used to generate the statistical model below.

Performance = 0.353 + 0.161 Operational Capability ......Model 2

Generally, the calculated probability values for the parameters associated with the four predictor variables are less than the 0.05 threshold adopted as a criterion for testing corresponding hypotheses. However, it can be noted that the calculated probability value for the parameter associated with the y-intercept is greater than the 0.05 threshold for the level of significance. Therefore, it is apparent that when the predictor variables are held at a constant zero, the performance of food processing firms surveyed would be at 0.353. However, the calculated probability for this parameter is 0.173, comparatively greater than 0.05, and thus there is no sufficient statistical evidence to reject the null hypothesis that the y-intercept is equivalent to zero.

The objective of the study was intended to analyze the effect of operational capability on the performance of food processing firms in Nairobi City County, Kenya. The null hypothesis that was formulated in respect of this objective postulated that operational capability has no significant effect on the performance of Food Processing firms in Nairobi City County, Kenya. The parameter that was estimated for marketing capability was 0.161, with a t-statistic of 2.80 and a corresponding value of the calculated probability of 0.006. Comparatively, the value of calculated probability was found to be less than the threshold p-value of 0.05 chosen by the researcher for the purpose of testing the null hypothesis. As a result, the researcher rejected the null hypothesis confirming that at a 95 percent level of confidence, operational capability has a statistically significant effect on performance.

Moreover, the results of the regression coefficient revealed that in the case of operational capability is increased by 1 unit, the performance of food processing firms increases by 0.161 units and vice versa. The study, therefore, concludes that operational capability has an effect on the performance of Food Processing Firms in Nairobi City County, Kenya. The conclusion of this study corroborates the conclusion and observations of other past scholars and researchers (Ahmed, Kristal & Pagell, 2014; Takahashi, Bulgacov & Giacomini, 2016; Loice, Bonuke & Kibet, 2017) that operational capabilities enable business enterprises to execute organizational tasks and essence contributes positively to performance. Likewise, the conclusion validates the propositions of the resource-

based view and dynamic capabilities theory that an assortment of strategic assets such as capabilities and other resources are a source of competitive advantage (Kim & Mauborgne, 2005). Furthermore, the stock of strategic assets held by a firm can be integrated, renewed, and reconfigured into internal and external competencies with the potential to enhance performance and address rapidly changing environments (Teece, Pisano & Shuen, 1997).

V. CONCLUSION AND POLICY IMPLICATION

The researcher intended to assess the effect of operational capability on the performance of food processing firms. Towards this end, the research performed a regression analysis of the data gathered from the field and confirmed that operational capability affects performance. The conclusion of this study is that operational capability has a positive contribution to the performance of food processing firms in Nairobi City County, Kenya.

The output of regression analysis supported the expectation of the researcher that market condition moderates the relationship between strategic assets and performance. The study, therefore, concludes that market condition has a moderating effect on the relationship between strategic assets and performance of food processing firms in Nairobi City County, Kenya. Finally, an empirical investigation aimed at assessing the mediating effect of competitive advantage on the relationship between strategic assets and performance. Guided by this objective, the researcher performed the necessary inferential analysis for mediation and confirmed that, indeed, competitive advantage has a mediated role in the relationship between strategic assets and performance. In this case, the study concludes that competitive advantage partially mediates the relationship between strategic assets and the performance of food processing firms in Nairobi City County, Kenya.

The operational capability was found to have a positive effect on the performance of food processing firms in Nairobi City County. It's therefore instructive for management to foster activities and practices that seek to lower the unit cost of production as well introduce new processes that enhance the delivery of services to customers. Relevant policies should also be formulated to guide investment, exploitation of resources, and practices in respect of operational capability.

A. Suggestions for further research

The findings and inferences made from this study are delimited to the construct of operational capability, market condition, competitive advantage, and performance in the context of food processing firms in Nairobi City County. It is, therefore, necessary for future researchers to undertake similar or replicative empirical studies in food processing firms in other counties in Kenya as well as in other organizations and industries in order to validate the findings and conclusions of this study. In addition, future research work should focus on investigating the moderating and mediating role of other variables such as

firm size and firm strategy on the relationship between operational capability and performance. It would also make valuable empirical and practical sense to investigate moderated-mediated or mediated-moderated relations involving the same set of variables. In addition, other factors that may not have been accounted for in the direct relationship as implied by the coefficient of determination may also warrant the attention of future researchers.

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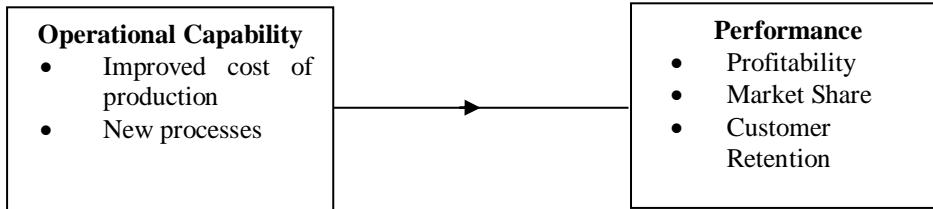
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Figu. 1 Conceptual Framework

Source: Author (2019)

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Table 1. Distribution of Target Population

Category	Turnover (Ksh. per annum)	Frequency	Percentage
Large	At least 750,000,001	36	35.2
Medium	500,000,000 to 750,000,000	33	32.4
Small	At most 500,000,000	33	32.4
Total		**102**	**100**

Source: KRA (2019) and KAM (2017)

Table 2. Distribution of Sample Size

Strata	Size of strata	Sampling Ratio	Sample	Sampling Factor	Sample Frequency	Percentage
Large	36	0.3	11	5	55	35.6
Medium	33	0.3	10	5	50	32.2
Small	33	0.3	10	5	50	32.2
Total			**31**		**155**	**100**

Source: Author (2019)

Table 3. Results of Reliability Test

Research Variable	Number of Items	Cronbach Alpha	Comment
Firm Performance	14	0.914	Reliable
IT Capability	6	0.892	Reliable
Aggregate Score	**20**	**0.903**	**Reliable**

Source: Survey Data (2019)

Table 4. Descriptive Statistics of Operational Capability

Descriptions and characteristics	N	Mean	Std Deviation
Our firm is creative in its methods of operations	110	4.14	0.549
Our operation uses the most recent activities	110	4.28	0.607
Product development uses high technology	110	4.32	0.565
The use of current technology decreases the unit cost of production	110	4.48	0.487
Aggregate score		**4.31**	**0.552**

Source: Survey Data (2018)

Table 5. Descriptive Statistics of Firm Performance

Profitability	n	Mean	Std Deviation
Profitability in 2012	110	3.36	1.11
Profitability in 2013	110	3.34	1.12
Profitability in 2014	110	3.37	1.11
Profitability in 2015	110	3.33	1.10
Profitability in 2016	110	3.40	1.13
Aggregate Score for profitability		**3.36**	**1.11**
Market Share			
The market Share distribution in 2012	110	4.15	0.730
The market Share distribution in 2013	110	4.27	0.597
The market Share distribution in 2014	110	3.92	0.774
The market Share distribution in 2015	110	4.08	0.890
The market Share distribution in 2016	110	4.00	0.796
Aggregate Score for market share		**4.08**	**0.757**
Customer Satisfaction			
Is customer loyalty a priority in your organization	110	4.13	0.756
Does the number of customer complaints impact your organization performance	110	4.29	0.646
The overall satisfaction is of value to your organization	110	4.33	0.593
Our customer retention has increased performance	110	4.39	0.436
Aggregate scores for customer satisfaction		**4.29**	**0.608**
Aggregate scores for performance		**3.88**	**0.842**

Source: Survey Data (2018)

Table 6. Effect of Operational Capability on Firms Performance

	Test Statistic	P-value	
Adjusted R-squared	0.4762		
R-squared	0.4955		
F-statistic (4, 105)	25.8	0.000****	
Regression results			
	Coefficients	**t-statistic**	**P-value**
Operational Capability	0.161***	2.80	0.006
Constant	0.353***	1.37	0.173
Key: ** significant at 5 percent and *** significant at 1 percent			

Source: Survey Data (2018)

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