



VALUE CHAIN ANALYSIS AND PERFORMANCE OF FLORICULTURE EXPORTING FIRMS IN KENYA

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ARTICLE INFO

Received 3 August 2022

Accepted 15 August 2022

Published 21 October 2022

Keywords:

Value chain analysis

Logistics capabilities

Operations capabilities,

Cite:

Kuria, W. &, Kariuki P. (2022). Value Chain Analysis And Performance Of Floriculture Exporting Firms In Kenya. *Int Journal of Social Sciences Management and Entrepreneurship* 6(2): 345-355, 2022

ABSTRACT

The general objective of this study was to assess the effect of value chain analysis on performance of floriculture exporting firms in Kenya. The specific objectives are; to determine effect of logistics capabilities, operations capabilities, on performance of floriculture exporting firms in Kenya. The study was anchored on the transaction cost theory, resource based view theory. The study employed descriptive research design. The target population was 240 staff in the logistics, finance and sales and marketing departments of the floriculture exporting firms. Taro Yamane sampling formula was used to obtain a sample of 150 staff. The study used simple random to obtain the sample size. Questionnaires were used for data collection. A pilot study was conducted with 15 respondents representing 10% of the sample. Construct and content validity was used. Reliability was tested using Cronbach's Alpha Coefficient. Data was analyzed quantitatively using SPSS version 26 through descriptive (frequency, percentage, mean) and inferential statistics (correlation and regression). Findings were tabulated. Findings showed that; there is a moderate and significant correlation between logistics capability and firm performance ($r= 0.441$, $p\text{-value}=0.004$), a small and significant relationship between operations capability and firm performance was ($r= 0.247$, $p\text{-value}=0.014$). The study recommends that; The firms should invest on logistics management to save on transportation and warehousing operations costs. The firms should hire skilled plant technicians on permanent basis. This will ensure that the operations are not halted in case of machine breakdowns.

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Cite:

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2590-2911/© 2022 The Authors. Published by Elsevier Ltd.

Int Journal of Social Sciences Management and Entrepreneurship 6(2)

<https://doi.org/10.1016/j.ssaho.2022.100101>

INTRODUCTION

A value chain is a set of activities carried out in an organization to create value for its customers. Value chain involves organizing the activities that every strategic organization department embarks on to design, produce, promote, market, deliver and support the product or service it sells. Value chain analysis is a strategic process where a firm evaluates its internal activities to identify how each contributes to the firm's competitive advantage. The definitive goal of a value chain analysis is to pin down the practices and processes that differentiate a firm from its competitors. Value chain analysis is a way for businesses to analyze the activities they perform to create a product. Once the activities are analyzed, a business can use the results to evaluate ways to improve its competitive advantage (Zamora, 2016).

Capabilities are the complex bundles of individual skills, assets and accumulated knowledge exercised through organizational processes, that enable firms to co-ordinate activities and make use of their resources. To achieve competitive advantage, the capability must also be rare. Having a valuable and rare capability provides a company with a "first mover advantage" vis-à-vis competitors. However, in order to avoid replication by competitors, the capability at hand must also be imperfectly imitable (Barney, 1991).

Porter (1985) classified value chain activities into primary and supporting activities. Primary activities are also the main activities of the organization including: Inbound logistics, operations, outbound logistics, marketing and sales. Support activities include procurement, technology development, human resources management and infrastructure including finance, accounting, and general management (Hill, 2013). This study will focus on three primary activities (logistics management, operations management, marketing and sales management) and one support activity (strategic procurement). Value chain activities allow firms to determine the strategic advantages of their activities and value-creating processes in the marketplace (Harmon, 2010).

A well-managed value chain aims to optimize interactions between firm in order to increase service delivery, resource utilization, and cost savings, particularly in the area of inventory holding (The Institute of Value Management,

2008). Value chain analysis could help an organization to improve the quality of products/services, evaluate competitive positioning, reduce delivery time both from suppliers and to the customers, and minimize costs through reconfiguring the value chain (Murray, 2019). Changes in agriculture and food standards have had a significant impact on the agricultural value chains in the last two decades due to rising competitiveness from international marketers, economic deviation and scope in production and distribution, (Gachukia, 2017). As a result of these changes, new management strategies have been established to fulfill new sources of demand, as well as the development of lean, efficient, and flexible production and processing methods (Zonin, Winck, Zonin, Leonardi, & Machado, 2014).

Statement of the Problem

Floriculture is the second largest export after tea. It contributes approximately 1% of the country's GDP. It is among the country's largest source of employment with more than 100,000 citizens working directly in the flower industry and almost 2,000,000 indirectly. Kenya is the lead exporter of rose cut flowers to the European Union (EU) with a market share of 38% (FAO, 2019). The volume of flower exports was 373.78 million kilograms in 2021 which was a 3.3% increase from 287.8 million kilograms in 2020. The earnings also increased from 99 billion in 2020 to Ksh.101 billion in 2021. The volume of the exports has been declining due to shortage of soluble fertilizer which is a critical input in flower farming. Previously, it cost \$0.21 on average to produce one rose flower, but with the current tax it costs \$0.36. This has forced Kenya exporters to sell a kilogramme of rose flowers at \$0.3 compared with Ethiopia that sells at \$0.28 per kg (KNBS, 2022). Therefore, Ethiopia may gain competitive advantage over Kenya in the European market. Other challenges in the floriculture has been caused by the changes in the demands of the European market, while others have been brought on by competitors (European growers). The EU's conditionality, which imposes a bare minimum on carbon dioxide emissions during the manufacturing process, is one of the growing external pressures forcing floriculture companies to adopt measures to improve the quality of their flowers (Juma, 2020).

Value chain analysis helps companies to make sound decisions, provide superior solutions to

their customers' needs, and increase their members' understanding of the organization's aims. Nonexistence of value management in an organization could result to fallacious decisions, low technology adoption, consumer discontentment, substandard products, and loss of market share as a result of firm's failure to compete in the market (Muthoka & Ogutu, 2018). The flower firms in Kenya mainly export the product in its natural form and little or no emphasis on value addition. Value addition of floriculture produce through drying or extracting of color pigments and can add value to the tune of 30–100% to fresh flowers.

There exists several studies on value chain and performance in Kenya. Munyi and Deya (2019) study on effect of strategic value chain on performance of pharmaceutical companies in Kenya found that value chain activities have a significant relationship with firm performance. Susanken (2017) assessed effectiveness of value chain on online businesses and revealed that value chain practices were essential in value creation of services and products provided to consumers. Chege (2017) study on influence of internal value chain practices revealed that internal business value chain was significantly related to performance of manufacturing companies. Mulangu (2017) noted that adoption of strategic capabilities in horticultural firms in Kenya is very low hence hindering their performance. He however recommended that adoption of strategic capabilities would help to improve firm performance. There is study limitation on effect of value chain analysis in floriculture industry in Kenya hence the need to study effect of strategic value chain analysis on performance of floriculture exporting firms in Kenya.

Research Objectives

- i To determine effect of logistics capabilities on performance of floriculture exporting firms in Kenya
- ii To assess effect of operations capabilities on performance of floriculture exporting firms in Kenya

LITERATURE REVIEW

Theoretical Review

Transaction Cost Theory

Coase created transaction cost theory in 1971. Williamson (1995, 1981) extended on the theory by emphasizing the significance of transaction costs in fostering organizational trust. The key

hypothesis of the theory is that transactions will be handled in such a way that the costs of carrying them out are minimized (Rindfleisch & Heide, 1997). The total cost of ownership (TCO) includes the purchase price, transportation and logistics costs, transaction costs, capital lockup and depreciation costs, and risk costs. In terms of value chain analysis, risks are associated with the unpredictability of performance metrics. Among the causes of risks in the value chain is logistics management.

The risks can have a detrimental impact on sales, affecting distributors and retailers further down the supply chain (Koufteros, 1999). When switching from a local to an offshore provider, the delivery lead time may increase from one week to five weeks (sea freight). The five-week lead time is due to greater capital lockup costs due to higher safety stocks and increased value of goods-in-transit. This hypothesis applies to the current study since logistics capability would aid in cost reduction. As a result, organizations with lower transaction costs do better than those with greater transaction costs.

Resource Based Theory

The resource based view theory was developed by Barney (1991). Firm resources are the key primary determinants of its performance, and these may contribute to a sustainable competitive advantage of the firm. The Resource Based Theory is a method of analyzing and identifying a firm's strategic advantages based on examining its distinct combination of assets, skills, capabilities and intangibles as an organization. The RBV's underlying premise is that a firm differs in fundamental ways because each firm possesses a "unique" bundle of resources-tangible and intangible assets and organizational capabilities to make use of those assets. A strategic resource is an asset that is *valuable*, *rare*, *difficult to imitate*, and *non-substitutable*.

Strategic resources that are *valuable* or *rare* are valuable because of the relatively high cost of acquiring them. Competitors have a hard time replicating resources that are hard to imitate. A resource is non-substitutable when competitors cannot find alternative ways to gain the benefits that a resource provides (Barney, 1991). Each organization develops competencies from the resources, and when developed effectively, the source of organizations competitive advantage (Pearce & Robinson, 2017). Orina (2015) noted

that the capability of an organization is demonstrated in its potential and ability to compete. Every organization has actual and potential strengths and weaknesses and it is important to try to determine what they are and to distinguish one from the other. Therefore what a firm can do is not just a function of the opportunities it confronts but it also depends on what resources the organization can master.

Conceptual Framework
Independent Variables

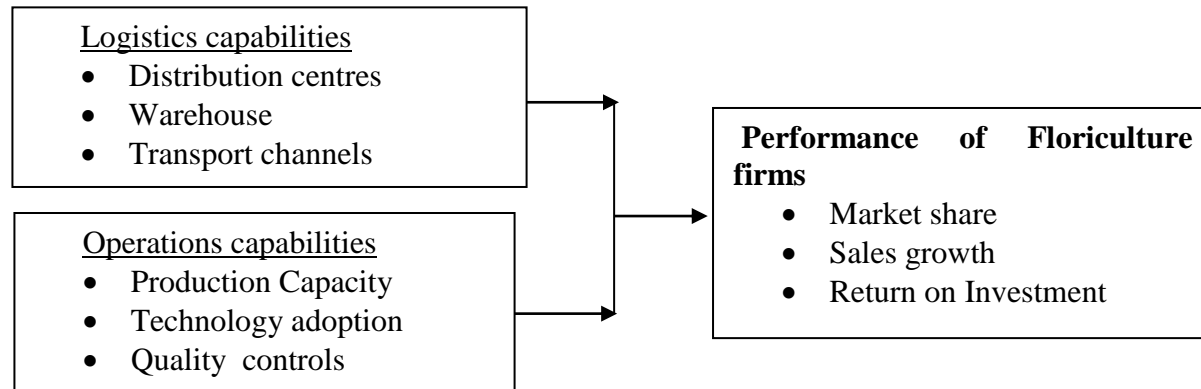


Figure 1: Conceptual Framework

Logistics Capabilities

Logistics capability is that part of a firm's resources which allow it to conceive of and implement strategies that improve efficiency and effectiveness. Logistics uses strategies to deliver high-quality products with competitive price and service levels. These strategies should translate into functional policies that will bring the goods and services to the customer (Madhani, 2019).

Logistics is how to arrange, and control systems for proficient and powerful transportation of products from production point to consumer aimed at satisfying customer's needs . It is the general management of collection, warehousing and transportation of products to consumers (Corbett, 2014). Logistics management, according to Hill et al. (2012), regulates the flow of raw resources along the value chain, from sourcing to manufacturing and distribution. The efficacy with which this operation is performed has the potential to greatly reduce/or lower costs, hence creating value.

The ability of firms to distribute products effectively has become one of the major challenges facing business organizations, especially when it comes to transporting products, from the production plant to their various

According to Tanguis (2015), resource-based theory perceives the firm as a collection of assets or capabilities. In the modern economy, most of these assets and capabilities are intangible. The firms must therefore ensure that the products are valuable, and difficult to copy by their competitors to achieve competitive advantage. This is achieved through effective management of the firm operations.

Dependent Variables

customers. The need to transport goods to customers not only imposes direct costs on firms but also affects the on time delivery and sales growth of the firm. Logistics aids in the optimization of a company's existing production and transportation processes through effective management approaches, hence increasing business performance and competitiveness. Transportation and distribution system, according to Rui and Luis (2014), is the most important component of a logistics chain.

Operations Capabilities

Strategic operations management is the daily control of production, such as scheduling, monitoring, and adjusting. Operations management is responsible for producing goods and/or services (Demir, 2019). The five operational performance objectives, according to Slack et al (2010), are price, value, speed, reliability, and flexibility. Pricing includes embracing a constructive cost-cutting approach and offering products at the lowest possible pricing. The capacity to create products in line with specifications and without error is referred to as quality. Speed is defined as the ability to respond quickly client's needs. This involves that the product ordered reaches the client within the shortest time possible. Reliable firms always fulfill deliver promises to their customers.

Operations management, according to Pearson (2010), is a multidisciplinary field of specialty in a company. The operations unit oversees that an organization's raw materials and people resources are used in the most efficient manner possible, maximizing output.

Empirical Review

Khan (2020) examined effect of inbound logistics on performance of clothing factories in Bangladesh. Target was 123 export processing firms. Results showed that inbound logistics abilities are significantly related to tangible performance but insignificantly related to intangible firm performance. Panagiotis and Malindretos (2020) studied effect of green logistics management on firm performance in Greece. Sample size was 134 firm managers. Results showed that transport network management was the most significant factor related to business performance. However, green warehousing and logistics emission had no significant relationship with performance outcomes.

Ristovska, Kozuhharov and Petkovski (2017) examined effect of logistics management on firm performance in the Republic of Macedonia. The study employed a descriptive research design with 80 respondents. Findings revealed; adequate storage, warehouse, and transport reduce general operation costs. Efficient logistics management also increased business efficiency, customer satisfaction and competitiveness. Bagshaw (2019) sought to find out effectiveness of logistics management on timely delivery and sales growth in Nigeria. The target was 135 firms and 122 were sampled purposively. Data was collected using questionnaires. Results revealed that effective transportation and distribution influences timely delivery and sales growth respectively. Oladunni (2020) examined impact of logistics management on performance of manufacturing sector in Nigeria. The sample comprised of 96 senior management staff. Data was collected using questionnaires. Findings showed that logistics positively and significantly affected on performance of manufacturing sector.

Wakiariro (2020) assessed logistics management in horticulture exporting firms in Tanzania. Data was collected using questionnaires and document review. Findings showed that horticultural logistics plays a significant role in the horticultural export value chain. It was also

revealed government support through extension services and farm inspections contributed to growth of horticultural exports in Tanzania. Chala (2021) analyzed how logistics management affected performance of sugar factory. The sample was 100 senior management staff. Results revealed that transport, inventory, and storage facilities management was significantly related to firm performance.

Akgul, Gozlu and Tatoglu, (2015) assessed relationship nexus between operations strategy and performance of firms of Turkey. Data was collection using questionnaires. Analysis revealed that operations strategy has a strong and positive influence on firm performance. Operations cost, production time, and new product development affected firm performance. Amarjit, Manjeet, Neil and Mand (2014) studied nexus between operational efficiency changes and performance of manufacturing firms in India. This research employed a correlational research design. The target included 500 firms listed in the stock exchange and 244 firms were sampled. Secondary data was collected from the stock exchange for five years. Results showed that operational efficiency significantly affected performance of manufacturing firms.

Mohammed, Yusheng and Mensah (2019) explored relationship between operations effectiveness and financial performance in Ghana. Secondary data was collected from firms' reports. Results revealed an insignificant nexus between operational efficiency and organization performance. Bengat (2015) investigated practices adopted in the operations of agricultural NGOs in Nairobi County. Exploratory design was adopted. Census was used in sampling 35 agricultural NGOs in Nairobi. Data was collected using questionnaires. Findings showed that operations management significantly affects performance in agricultural NGOs. Level of operations development was influenced by the organization's programs. Sigei, Ngeno, Kibe, Mwangi and Mutai (2014) sought to determine challenges hindering competitiveness of tomatoes in Kenya. Data was collected using published data from agricultural state agencies. Challenges facing tomato value chain were identified as production ineffectiveness, market unreachability, and low utilization of processing facilities.

RESEARCH METHODOLOGY

The research was conducted using a descriptive research design. The target population was 50 floriculture firms in Kenya. The management staff of floriculture firms in Kenya formed the study target. This included 240 staff in logistics, finance and sales and marketing departments. The staffs were targeted as they have adequate knowledge on the value chain analysis capabilities and performance of the firm. Taro Yamane 1967 formula was used. The staff were selected using simple random sampling. The researcher will randomly pick 50 respondents from the three departments. This ensured that all the staff had equal chances of presentation in the study. The study sample size was 150 staff from the three departments. Primary data was collected using open and close ended questionnaires. SPSS version 26 was used for data analysis to generate descriptive (frequency, percentage, mean) and inferential statistics (correlation and regression). A regression was conducted to get an in-depth understanding of how a change in one variable causes a change to the other using the t-value and p-value.

DATA ANALYSIS

Strategic Logistics Capability

The first objective of the study sought to determine effect of logistics capabilities on performance of floriculture exporting firms in Kenya. Respondents were asked to tick on degree to which they agree/disagree with listed statements on logistics capability. Findings are presented in Table 1

Table 1: Strategic Logistics Capability

Statements	M
Effective warehousing methods help in reduction of the rate of product defects	3.67
Delivering products on –time as per client requests enhances customer loyalty	3.72
The firm has a fleet of vehicle for effective delivery	1.98
Store management helps to reduce risks arising from stock shortage	3.26
The perfect administration of inventory has enhanced productivity and reduced product fault	3.36
Effective movement of flowers from the warehouse to airport helps to reduce costs	3.53
Fleet management strategies help to minimize accidents	4.23

N=98

Findings show that the management staff strongly agreed that fleet management strategies help to

minimize accidents (m=4.23). The staff further agreed that delivering products on –time as per client requests enhances customer loyalty (m=3.72), effective warehousing methods help in reduction of the rate of product defects (m=3.67), effective movement of flowers from the warehouse to airport helps to reduce costs (m=3.53), the perfect administration of inventory has enhanced productivity and reduced product fault (m=3.36), and store management helps to reduce risks arising from stock shortage(m =3.26). The management staff disagreed that the firm has a fleet of vehicle for effective delivery (m=1.98). Findings implies that logistics management help to improve firm performance although majority of the firms lack enough delivery vehicles. This means the delivery is either late for delivery which may compromise quality. Findings are in agreement with Ristovska, Kozuhharov and Petkovski (2017) that adequate storage, warehouse, and transport reduce general operation costs. Efficient logistics management also increase business efficiency, customer satisfaction and competitiveness. Findings also concur with Bagshaw (2019) that effective transportation and distribution influences timely delivery and sales growth respectively.

Operations Capability

The second objective to assess effect of operations capabilities on performance of floriculture exporting firms in Kenya. The management staff were asked to indicate the extent to which they agree/disagree with listed statements related to operations capability. Findings are presented in Table 2.

Table 2: Operations Capability

Statements	M
Design of products aims at complying with the legal requirements	3.52
The firm has a technical team to address machine breakdown and normal maintenance	2.66
Products and facilities are regularly inspected	3.30
There is continuous staff capacity building on quality in the floriculture industry	2.12
The firm hires more workers when demand increases	2.59
Space available is properly used	3.64
The management adjusts operating hours depending on demand	3.91
Communicate channels enhances easier sharing of information among operations staff	4.29

N=98

Findings show that majority of the management staff strongly agreed that that communicate channels enhances easier sharing of information

among operations staff (m= 4.29). The staff also agreed that the management adjusts operating hours depending on demand (m=3.91), space available is properly used (m= 3.64), design of products aims at complying with the legal requirements (m= 3.52), and products and facilities are regularly inspected (m=3.30). The respondents disagreed that the firm has a technical team to address machine breakdown and normal maintenance (m=2.66), the firm hires more workers when demand increases (m= 2.59), and there is continuous staff capacity building on quality in the floriculture industry (m= 2.12).

Findings imply that majority of the firms have enough working space. The firms have also prioritized quality of the products since they ensure that products and facilities are regularly inspected. The smooth operations of the firm is hindered by labour availability which may lead to fatigue of the work force. The firms also lack an operations management team for constant machine maintenance and there is no regular staff capacity building on desirable quality for floriculture. This may slow down operations leading to poor quality of products. Firm performance would be affected as a result. Findings are in agreement with Akgul, Gozlu and Tatoglu, (2015) that operations cost, production time, and new product development affect firm performance. Sigei, Ngeno, Kibe, Mwangi and Mutai (2014) also found that the key challenges facing horticulture firms were production ineffectiveness, market unreachability, and low utilization of processing facilities.

Firm Performance

Various measures were used to determine firm performance. The management staff were asked to tick on the extent to which the firm has realized improved performance over the last 5 years, from 2017 to 2021. Findings are presented in Table 3.

Table 3: Firm Performance

Statements	M
Market Share (2017-2021)	3.69
Sales growth	2.77
Profitability	2.47
Customer satisfaction	3.66
Customers compliment to the firm	3.88
Growth in value added productivity	2.17

N=98

Results in Table 3 show that customers compliment to the firm have improved to a great extent (m= 3.88), market share from 2017-2021

have increased to a great extent (m= 3.69), sales growth have improved to a moderate extent(m=3.67), customer satisfaction to a moderate extent(m= 3.66), profitability to a small extent (m= 2.47), and growth in value added productivity to a little extent (m= 2.17). Findings indicate that that the firms are having challenges in value addition and profitability which affect general firm performance.

Correlation

Table 4: Correlation Coefficient

Variables		Firm performance	Logistics	Operations
Firm performance	Pearson Correlation	1		
	Sig. (2-tailed)			
Logistics	Pearson Correlation	.441**	1	
	Sig. (2-tailed)	.004		
Operations	Pearson Correlation	.247*	.444	1
	Sig. (2-tailed)	.014	.000	

Findings show that the Pearson correlation coefficient for logistics capability and firm performance was (r= 0.441, p-value=0.004), that of operations capability and firm performance was (r= 0.247, p-value=0.014). This shows that the correlation between logistics capability and firm performance was moderate and significant, operations capability and firm performance was small and significant. The findings are in support of Munyi and Deya (2019) that logistics management is positively related with performance, Amarjit, Manjeet, Neil and Mand (2014) that operational efficiency significantly affected performance, Mohammadi, Kashefi and Abolhasani (2019) that marketing strategies of differentiation and market development are significantly related to export performance of saffron companies, and Anwar and Abdullah (2021) that all human resources management activities have a significant effect on organization performance.

Regression

Table 5: Model Summary

Model	R	r ²	Adjusted r ²	Std. Error of the Estimate
1	0.694	0.553	0.525	.681

Findings in Table 5 show R-square value of 0.553. This shows that 55.3% of changes in floriculture firms performance may be explained by strategic logistics management, operations management, marketing, human resources management. This means that other value chain capabilities practices that this study did not focus on contribute to 44.7% of firm performance.

An analysis of variance was performed on the relationship between independent variables and dependent variable. ANOVA results are presented in Table 6

Table 6: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	39.411	4	9.853	12.693	.000 ^b
Residual	72.191	93	.776		
Total	111.602	97			

The ANOVA shows that the F value of 12.693 is significant at the 0.05 significance level. In general, the regression model with the four independent variables of logistics management, operations management, marketing, human resources management was fit in explaining the changes in firm performance.

Multiple regression shows how a change in the independent variable would predict a unit change in the dependent variable. Table 7 presents the regression coefficients.

Table 7: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error			
Constant /Y Intercept	2.433	.532		4.571	.000
Logistics	.241	.083	.294	2.912	.005
Operations	.134	.087	.137	1.514	.005

As per the SPSS generated in Table 7,

The following regression equation was established from the regression analysis:

$$\text{Firm performance} = 2.433 (Y) + 0.241X_1 + 0.134X_2$$

From the above regression model logistics management, operations management, marketing, human resources management at constant zero,

performance of floriculture exporting firms in Kenya would be 2.433. It was established that a change in logistics management may cause changes in firm performance by a factor of 0.241, a change in operations management may cause changes firm performance by a factor of .134, a change in marketing may cause changes in firm performance by a factor of 0.226, and a change in human resources management may cause changes in firm performance by a factor of .305. The t statistics show that human resources management capabilities had the greatest effect on firm performance (3.143), logistics capability (2.912), marketing capabilities (2.902) and operations capabilities had the least effect of firm performance (1.514). Findings are in agreement with Susanken (2017) that value chain practices were essential in value creation of services and products provided to consumers. Chege (2017) also found that internal value chain practices were significantly related to firm performance.

Conclusion

Performance of floriculture firms in Kenya is affected by various value chain capabilities including logistics capability, operations, marketing and human resources capability. Effective distribution of products is a key challenge facing the horticulture firms mainly due to inadequate fleet management facilities like delivery vehicles. This results to delay while transporting products to their destination. The firms’ operations are delayed by staff inadequacy. The number of staff in the firms is smaller compared to the workload and they end up working extra hours incase of high demand of the products. The staff are hence overwhelmed their work which affect their productivity. Majority of the firms do not have a standby plant technician meaning that in case of machine breakdown the operations come to stand still leading to piling up of delivery and customer dissatisfaction. The firms also however keen on product quality since they ensure that quality is ascertained before packaging to ensure that all set standards are adhered to.

Recommendations

The firms should invest on logistics management to save on transportation and warehousing operations costs. This should be through investing in transport vehicles or outsourcing logistics to ensure that products are delivered on time and reach the client in the desired quality. The firms should also implement fleet management systems.

This will enable the staff to track the products in transit and give accurate delivery timelines to the customers which may help to improve customer satisfaction. Findings have shown that the firm do not have a technical team to address machine breakdown and general machine maintenance. The study hence recommends that the firms should hire skilled plant technicians on permanent basis. This will ensure that the operations are not halted in case of machine breakdowns. The management should also hire more staff on contract of casual basis to help out when there is a high demand for the flowers. This will speed up operations and meet customers' demand.

Areas for Further Study

A similar study should be conducted in other horticultural firms since the study only focused on floriculture firms in Kenya. A study should be conducted incorporating other variables that probably predict 47.5% of firm performance

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