

Effect of supply chain integration on organisational performance of large manufacturing firms in Kenya

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Keywords

Supply chain
Manufacturing
Kenya
Organisational
performance

Abstract

Competition in manufacturing has shifted from individual firms to their supply chains, and so only a firm with an agile and versatile supply chain can sustain an effective competitive edge. With product demands being more customer-driven, shrinking product life cycles and alternative products springing up all the time, effective management of the supply chain, not just the internal factors, is needed. The general objective of this study was to establish the effect of supply chain integration on the performance of large manufacturing firms in Kenya. The specific objectives were to establish the effect of supplier integration, customer integration, technology integration and relationship integration on the performance of large manufacturing firms in Kenya. This study was conducted in Kenya and particularly the Nairobi region, which has the highest concentration of large manufacturing firms. The population was 50 large manufacturing firms in Nairobi County, and the respondents were 100 supply chain managers and supervisors in the firms. The researchers adopted a descriptive research design. Primary data was gathered using structured questionnaires. The primary data was collected from the supply chain managers and supervisors in the manufacturing companies. The data were analysed using descriptive and inferential statistics.

Normality, multicollinearity and heteroscedasticity statistical tests were conducted. A regression model was used to test the effect of supply chain integration on the performance of large manufacturing firms. The researchers concluded that supplier integration, customer integration, technology integration and relationship integration have a significant effect on the performance of large manufacturing firms. The researchers recommend that the manufacturing firms embrace supplier involvement and collaboration in their operations, such as in sharing of information, supplier evaluation, contract management and product development. The adoption of customer relationship management practices are recommended as a way of improving and sustaining performance of organisations. Firms that are yet to integrate IT system in their supply chain management should do so to enhance their competitive advantage in the industry. Lastly, the researchers recommend that manufacturing firms should conduct frequent supplier appraisals.

Introduction and Background

This study is intended to establish the effect of supply chain integration on the performance of large manufacturing firms in Kenya. Competition in manufacturing has shifted from individual firms to their supply chains, “therefore only a firm with agile and versatile supply chain can sustain the effective competitive edge” (Krikke & Caniels, 2018). With product demands being more customer-driven, shrinking product life cycles, and alternative products springing up all the time, effective management of the supply chain, rather than just the internal factors, is needed (Agyemang & Adzanyo, 2018). For effective and credible management of the customer and consumer, a joint effort by suppliers, manufacturers and distributors is required (Bagchi & Skjøtt-Larsen, 2018). In Kenya, companies face an increasingly challenging marketplace with a growing field of competitors, higher customer expectations, and complex supplier relationships (Kanyoma, Agbola & Oloruntoba, 2020). Increased competition means that companies face the dual challenge of cutting costs while being more responsive to the markets.

A firm’s supply chain integration success depends on management’s ability to integrate the company’s intricate network of business relationships, allowing improved decision-making, and consequently reducing cost and customer response time (Kumar, 2017). “Supply chain integration is the strategic integration of both intra- and inter-organisational processes and gauges the extent to which supply chain partners work collaboratively together to gain reciprocally beneficial outcome” (Omai, Ngugi & Kiarie, 2018). Supply chain integration links finished products with raw materials, parts and components to achieve a common whole. For effective integration of operational activities along the supply chain, firms require relationships that are cross-functional and cross-firm in nature, to maximize achievement of information sharing, close partnering and coordination (Leuschner, Rodgers & Charvet, 2019).

Manufacturing firms across the world have had to review their perspectives and actions to obtain components and materials from lower-cost countries for a competitive edge (Benitez, Ferreira-Lima, Ayala & Frank, 2021). Bagchi and Skjøtt-Larsen (2018) studied the underlying factors of supply chain integration in European firms, with particular emphasis on the role of information sharing and interorganisational collaboration. Both correlation analyses and multiple regression analyses indicated that supply chain integration affects operational performance. The degree of integration also influences cost and efficiency. There was a significant negative correlation between the length of relationship with suppliers and performance measures such as total logistics costs, on-time delivery and rate of return.

Supply chain integration has been on the rise but still faces challenges in Africa. Mofokeng and Chinomona (2019) “found that in many African manufacturing firms, there is a fragmented supply chain, rigid business process, problems with skilled manpower, outdated technology and lack of relevant literature on practical experience in supply chain integration. Agyemang and Adzanyo (2018) found that there is low supply chain integration in advanced information flows between well-established West African manufacturing firms and start-ups. Most manufacturing industries manage and coordinate information flows in traditional ways such as telephone, mobile, letters, and fax. The performance of West African countries’ manufacturing industries in supply chain relationship capabilities, information and communication technology capabilities and operational capabilities along with final customer’s desire, were at “low and limited levels.”

The need to cut cost is driving companies to outsource business operations, minimize inventories and divert underutilized capital equipment and facilities. Poor procurement performance contributes to rising inefficiency, and to costs in and competitiveness of the procurement function. According to Barsemoi, Mwangagi and Asienyo (2014), poor supply chain performance contributes to decrease in profitability in the private sector hence is a major hindrance to the realization of organisational growth as it leads to low quality goods and services, increase in defects and delays in delivery. In both public and private sectors, supply chain underperformance has been linked with the inability to embrace supply chain integration, use traditional supply chain procedures and poor coordination of supply chain activities between the requisitioning departments and the supply chain departments hence leading to delivery delays, inferior and defected products (Chemjor, 2015).

Statement of the problem

The performance of the manufacturing sector in Kenya has been negatively affected by obsolete supply chain management practices (Vernon, 2017). World Bank (2019) statistics show that Kenyan manufacturing firms have registered stagnation and declining profits for the past five years due to a turbulent operating environment. It is estimated that large manufacturing companies have lost 70% of their market share in East Africa, largely attributed to contingencies arising from among others improper management of supply chain.

Large manufacturing firms such as Colgate Palmolive, Reckitt Benckiser, Cadbury Kenya, Bridgestone, Devki Steel and Procter & Gamble have relocated or restructured their operations,

opting to serve the local market through importing from low-cost manufacturing areas such as Egypt, South Africa and India, resulting in job losses in east African countries leading to deteriorating economies and low standards of living (Musau, Namusonge, Makokha & Ngeno, 2017). In addition, these manufacturing firms have failed to manage their ever-increasing supply chain costs leading to poor performance. Co-ordination of supply chain operations among companies should become strategically important as new forms of organisation are taking place such as virtual enterprises, global manufacturing, network manufacturing, and different company-to-company alliances.

Kimani (2018) points out that manufacturing companies have faced challenges of dealing with the global market and its supply chain while retaining speed and flexibility, eliminating time wasting, co-ordinating effort and materials from all points in the supply chain, and meeting the needs of customers without holding excessive inventory. In relation to Kimani's study, Oketch (2019) focused on supply chain performance of pharmaceutical manufacturers in Kenya. The author noted that monitoring and measuring supply chain performance could help give a firm a competitive edge. Mwangangi (2016) on the other hand focused on influence of logistics management on performance of manufacturing firms in Kenya. Gichuru, Iravo and Arani (2019) focused on the effect of collaborative supply chain practices on performance of food and beverages companies.

Specific Objectives

This study was guided by these research objectives:

- i) To examine the influence of supplier integration on the performance of large manufacturing firms in Kenya;
- ii) To assess the influence of customer integration on the performance of large manufacturing firms in Kenya;
- iii) To evaluate the influence of technology integration on the performance of large manufacturing firms in Kenya; and
- iv) To determine the influence of relationship integration on the performance of large manufacturing firms in Kenya.

Theoretical review

Achieving and maintaining high levels of integration is complex and may demand unwarranted resources (Leuschner, Rogers & Charvet, 2019) hence before embarking on integration

missions, organisations have to be satisfied that it would be beneficial to them. Several theories support supply chain integration as they strive to explain the relationship between supply chain integration and organisational behaviour. In the examination of the effects of supply chain integration on operational performance of large manufacturing firms, this study uses contract theory, the social network approach theory, and the resource based theory.

Contract Theory

Contract theory was put forward by Arrow (1960). The contract theory observes how supply chain actors are capable of and develop contractual arrangements with asymmetrical information. Due to its relationship with both agency and motivators, it is often classified as part of economics and procurement law. One known area of its application is the design of maximal schemes of management compensation (Kitsao, 2017).

The important assumption in the theory is that the incentive contract is applicable under low costs and that the contractor is liable for any contracted work, basically through the court. But this is not always the case. The substandard service delivered by the Iraq contractors according to Krugman (2013) has resulted to prosecution of many. In contract theory, there are two critical issues: accountability and enforceability. In such adverse situations, institutions cannot afford to engage in contacts that will fail or lead to major failures among the associated parties. Therefore, based on this theory, contractors must include risk premiums as they are accountable for their every action. Secondly, this is a suitable solution to a reasonable intensity of risk.

Social Network Approach Theory

The social network approach theory was proposed by Granovetter in 1985. Granovetter argues that firms and people are socially disadvantaged if they do not have networks. Such people and firms do not have access to information and knowledge that exists outside their immediate network, and this may, for example, limit what an individual hears about job opportunities. Social network theory views social relationships in terms of nodes and ties where nodes are the individual actors within the networks, and ties are the relationships between the actors.

Social network approach theory is a combination of ideas drawn from the structuralism network tradition and more recent thinking, particularly the embeddedness and social capital perspectives. Khazraee and Gasson (2015) explain that economic exchanges are embedded in social networks. By “embeddedness” they mean that actors prefer to interact with family

members, friends, and acquaintances rather than with persons they do not know; that social ties are nested in other ties; and that previous ties influence the development of future ones. For many years, the criticism of network analysis was that its adherents had been successful in presenting elegant mathematical descriptions of social structures, but they had been less successful in demonstrating that those structures have actual behavioural consequences.

Resource Based Theory

The theory proposed by Barney (1991) provides an explanatory logic to unravel causal links among resources, capabilities and superior performance. According to Hamel and Prahalad's model (2002), organisations should focus on their competences and draw their strengths from this when they want to get ahead of their competition. According to their Core Competence Model, organisations can move into new markets and grow market possibilities more easily by using their core competences. The reason to define core competences is the specialized available knowledge that is difficult for other organisations to imitate. Unlike Michael Porter's "outside-in-view" this theory has an "inside-out-view".

In Barney (1991), a firm's resources include all assets, capabilities, technology, organisational processes, attributes, information and knowledge controlled by a firm that enable it to conceive and implement strategies that improve its efficiency and effectiveness. A firm is said to have a competitive advantage when it is implementing a value-creating strategy not simultaneously being implemented by any current or potential competitors. In accordance to Michael Porter (1979), competitive intensity is defined as the extent to which companies within a specific industry exert pressure on one another. Some level of competition is healthy because it acts as an impetus for innovation within organisations. Competition, whether in an industry or another setting, drives teams and individuals to give their best. In fact, such rivalry is what keeps a majority of firms on their toes, propelling them to do better than their competitors. According to Porter's framework, competition between firms has two facets, namely, intensity and dimension. Competitive intensity determines a company's profitability potential. So, with intense competition, a company will be able to transfer more value to its clientele. Barney (1991) further argued that to have the potential to generate competitive advantage, a firm's resource must have four attributes: (a) it must be valuable, in the sense that it exploits opportunities and/or neutralizes threats in a firm's environment; (b) it must be rare among a firm's current and potential competition; (c) it must be imperfectly imitable; and (d) there cannot be strategically equivalent substitutes for this resource.

The resource-based view is a method of analysing and identifying institutions strategic advantages based on examining its distinct combination of assets, skills, capabilities, and intangibles as an organisation (Lioukas, Reuer & Zollo, 2016). The RBV's premise is that organisations differ in fundamental ways because each possesses a unique bundle of resources: tangible and intangible assets, and organisational capabilities to make use of those assets.

Achieving and maintaining high levels of integration is complex and may demand unwarranted resources (Leuschner, Rogers & Charvet, 2019). Hence, before embarking on an integration missions, an organisation has to be satisfied that it would be beneficial to it. Several organisational theories support supply chain integration as they strive to explain the relationship between supply chain integration and organisational behaviour. In the examination of the effects of supply chain integration on operational performance of large manufacturing firms, this study has merged contract theory, social network approach theory and the resource-based theory.

Empirical Review

The empirical review is divided into two subsections. The first describes the various forms of integration that make up supply chain integration, while the second discusses the relationship between supply chain integration and operational performance.

According to Ballou (2015), supply chain integration as partnership-based coordination links a firm with its customer, supplier, and other channel members by integrating their relationships, activities, functions, process, and locations. Backward and forward integration are strategic initiatives companies may perform to reduce risks and interdependencies with external business partners in the supply chain. Daniel (2019) studied critical factors affecting supply chain management in brewery firms in Ethiopia. The study used quantitative and qualitative research. The findings indicated that the relationship of production scale and product quality had a small correlation with supply chain integration, a moderate correlation with customer focus and innovation, and a strong correlation with marketing and distribution. The study recommended that breweries in Ethiopia should identify the portfolio of key initiatives, such as strategic initiatives, operative initiatives, and continual improvement initiatives which are managed in a coordinated manner to create synergies among them. This would help transform their traditional supply chain into a demand-driven value network. Ghorbani and Khodadadian (2014) studied the impact of supplier integration on customer integration and new product

performance. The study was applied research regarding the purpose and is a survey-based study with the correlation approach regarding the method of execution. The sample of this study consists of 650 managers, superior and senior experts of IranKhodro.

Stank and Keller (2019) studied 306 firms in North America for logistical and performance benchmarking. The study used six aspects of integration and six measures of performance. Relationships influence: internal, operational and customer; technology and planning integration vs information systems support and advanced shipment notification support; measurement integration with customer satisfaction; and relationship integration vs financial performance, specifically return on assets. Raassens, Wuyts and Geyskens (2014) studied the performance implications of outsourcing customer support to service providers in emerging versus established economies. The study used secondary data to do comparisons between developed and developing economies. The findings indicated that customer-support outsourcing to emerging markets is less beneficial for services that are characterized by personal customer contact and high knowledge embeddedness than for customer-support services that involve impersonal customer contact and are low on knowledge embeddedness. The study further determined that firms higher in marketing resource intensity and larger firms benefit more from outsourcing customer-support services to emerging markets than firms lower in marketing resource intensity and smaller firms.

Yu, Jacobs, Salisbury and Enns (2013) investigated the relationships among internal integration, external integration such as with customers and suppliers, customer satisfaction, and financial performance using survey data collected from 214 manufacturing firms in China. The results suggest that internal integration significantly influences both dimensions of external integration, customer, and supplier integration, and that supplier integration is significantly and positively related to financial performance. The results also show that customer satisfaction is significantly and positively related to financial performance, and fully mediates the relationship between customer integration and financial performance. This study positions the benefits of integration as accruing from learning and financial performance being correlated to information flows. This study suggested that integration is the mechanism whereby information is transmitted and subsequently synthesized. The contextualization and organisation afforded through internal integration facilitates determining what information to bring in from outside the organisation, and knowing what to do with the information when it arrives.

Carr (2016) studied relationships among information technology, organisational cooperation and supply chain performance. The study discussed the use of information technology and the role of inter-functional and inter-organisational cooperation in supply chain organisations. The study further explored the concept of cooperation as an approach to improving relationships and performance outcomes. Based on the literature, a model depicting the relationships between information technology, communications methods, cooperation, and performance was presented and determined that there was a positive relationship among information technology, organisational cooperation, and supply chain performance. Mentzer (2019) suggests that joint system development and shared decision making with suppliers and customers enhances the understanding of management decisions across the partners and, consequently, promotes the sharing of risks and resources within the supply chain. This tends to reduce development cost and time, and improve profit margins, in product development. Kahn (2018) argues that internal coordination activities increase the understanding of the goals and activities among different functional units, which improves mutual trust and commitment to the organisation. As people trust each other and are more committed to their organisations, they are motivated to seek further coordination, which in turn improves product development performance.

Wang, Kang, Childerhouse and Huo (2018) explored the role of interpersonal relationships within a supply chain integration context. The study applied an exploratory/investigational approach to multiple case studies and empirically examined how interpersonal relationships affect inter-organisational relationships and supply chain integration. The study proposed that interpersonal relationships can indirectly and positively influence supply chain integration, mediated by inter-organisational relationships. Personal affection acts as a relationship initiator, and personal credibility serves as a gatekeeper, while personal communication works as a facilitator and plays a more important role than personal affection and credibility. Further, interpersonal relationships can initiate and enhance inter-organisational relationships to enable supply chain integration. In the formative stage of supply chain integration, personal affection and credibility play key roles, whereas personal communication becomes more significant in the operational stage. Zohdifar (2016) probed the relationship between supply chain integration and operational performance regarding the mediating role of information sharing in Aqqala industrial estates companies. The obtained results showed that logistics integration has a significant relationship with operational performance. Information technology capabilities and information sharing have significant direct and indirect relationships. The indirect relationship is related to information integration and integration of logistics relationship. Rasoulkia (2017)

conducted a study of the design of multiproduct supply chain and balancing the assembly line with a robust optimization approach. The study indicated that supply chain network designing is the transparent and rational locating of the facilities in the supply chain, determining the capacities and the way of selecting the source for the demand on the network, and choosing the mode of transport so that this design should provide the required level of serving the customer at the lowest cost. Annan et al. (2016) studied company sources and the external environment leaders and the results of the supply chain integration. Their findings illustrate that an increase in the interfirm networking resources and an increase in the position of dysfunctional competitive will result in a higher degree of supply chain integrity. In addition, the findings show that an increase in the companies supply chain integration in Liberia can deliver superior value to the customer and increase operational efficiency.

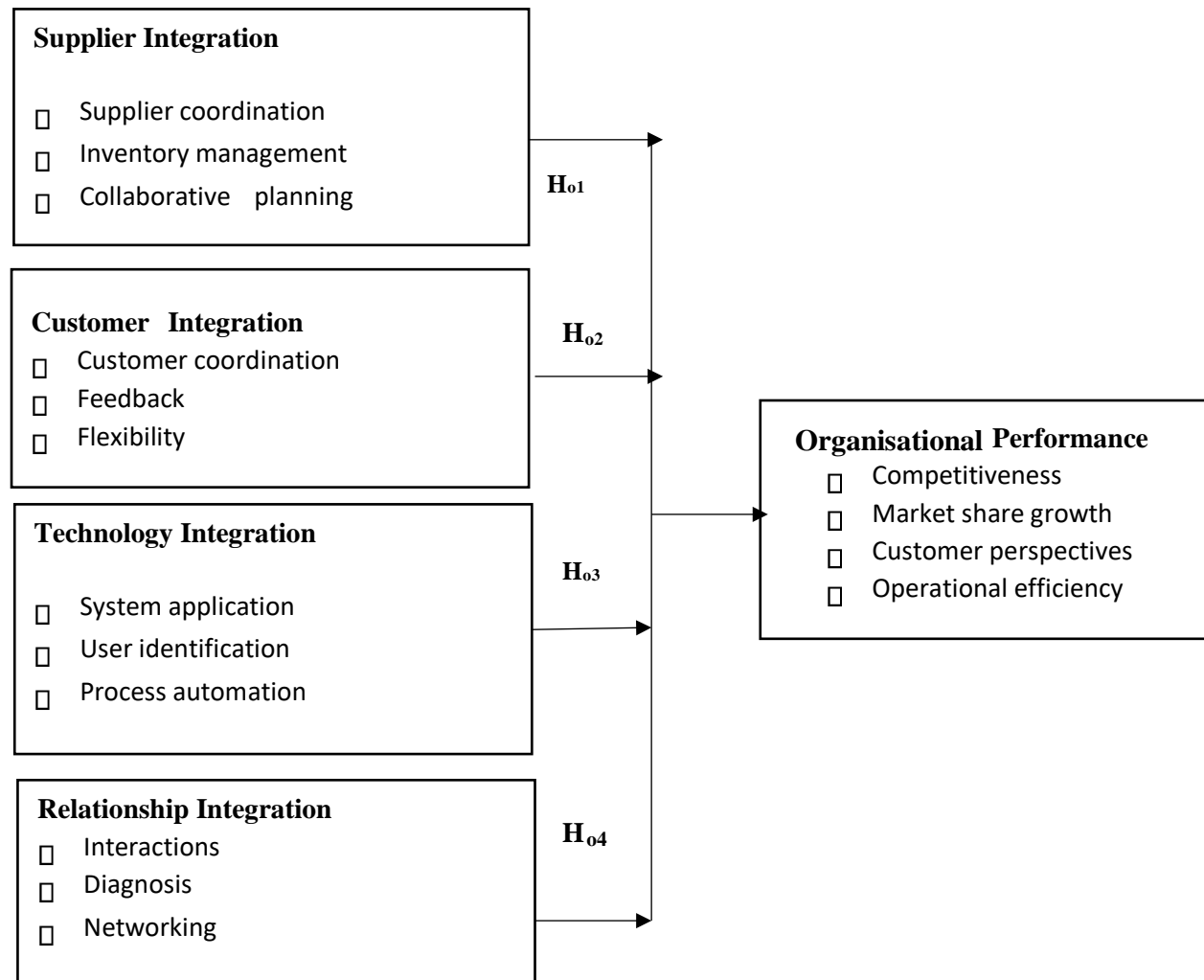
Supplier integration involves information sharing and coordination of activities with key suppliers so as to provide the organisation with insights to supplier processes, capabilities and constraints, which enables improved transaction planning, enhanced product and process design and effective planning and forecasting (Schoenherr & Swink, 2015). According to Das et al. (2017), information sharing has been enabled by mechanisms that support integration. These include electronic data interchange (EDI), application software like supply chain optimization (SCO) software and ERP systems, together with web-based integration systems. Coordination has been enabled by supplier relationship development, cross-functional involvement and joint problem-solving. These mechanisms result in capability development which in turn leads to creation of organisational resources which give the organisation competitive advantage according to the RBV theory.

Developing partnerships with suppliers enables them to better understand the organisation and to anticipate its needs. The mutual exchange of information on products helps the organisation develop production plans and produce goods on time, hence improving delivery performance (Flynn et al., 2018). The relational ties created by knowledge-based integration enable flexibility and give the organisation capability to adapt in uncertain environments. Supplier integration reduces transaction costs due to increased coordination and information sharing. It also enables speedy decision-making as more information is made available (Das et al., 2017). According to the RBV theory, creation of cross-functional teams promotes knowledge transfer between organisations which may otherwise not be easily transferred, hence encouraging joint

problem-solving (Das et al., 2017). This enables the organisation to produce higher quality products and services that are more responsive to customer requirements.

Conceptual Framework

The conceptual framework details relationships between variables under study. It embraces the linkage between the dependent and independent variables.



Research methodology

This study employed descriptive research design, as it is quantitative research. Orodho (2018) describes descriptive survey as a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. It can be used when collecting information about people's attitudes, opinions, habits or any of the variety of education or social issues (Orodho & Kombo, 2018). The descriptive research design was adopted because the study sought to describe one variable in a population of manufacturing companies. The

objective was stated and a clear definition of the population was given. The descriptive research design established the relationship between supply chain integration on performance. The population was 100 supply chain managers and supervisors in the top 50 large manufacturing firms listed with the Kenya Association of Manufacturers KAM (2020). A questionnaire was chosen as the data collection instrument for this study. Primary data was measured on a Likert scale and consisted of both closed and open-ended questions. The questionnaire was divided into two sections. Section one consisted of questions on general information about the organisation and section two contained specific questions in regard to how internal, supplier and customer integration practices take place in the organisation and how this affects operational performance of the organisation. A questionnaire were chosen as the data collection instrument because it ensures a high response rate, does not require a lot of time and energy to administer, and is considered confidential because respondents are not required to disclose their identity. It reduces opportunity for bias because they are consistent and most questions in the questionnaire were closed ended, making it easy to compare the responses received. Data was analysed using descriptive and inferential statistics. A regression model was used to establish the effect of supply chain integration on organisational performance of large manufacturing firms in Kenya.

Results and Findings

The study administered 100 questionnaires to managers and supervisors of the large manufacturing firms. A total of 96 questionnaires were correctly filled and returned translating a 96% response rate which was good for the study.

Correlation Analysis

Correlation analysis was conducted to establish the relationship between the independent and dependent variables. The correlation matrix is presented in Table 1.

Table 1
Correlation Matrix

Relationship	Organisational Performance	Supplier <u>Integration</u>	Customer <u>Integration</u>	Technology <u>Integration</u>
Organisational Performance	1.000			
Supplier Integration	.749**	1.000		
Customer Integration	0.000		1.000	
Technology Integration	.777**	.625**	.602**	1.000
Relationship Integration	.718**	.585**	.698**	.627**
	0.000	0.000	0.000	0.000
	.773**	.585**	.698**	.627**
	0.000	0.000	0.000	0.000

Source: Field survey data (2021)

The results in Table 1 revealed that supplier integration and organisational performance of large manufacturing firms are positively and significantly related ($r= 0.749^{**}$, $p=0.000$). The results further indicated that customer integration and organisational performance of large manufacturing firms is positively and significantly related ($r= .777^{**}$, $p=0.000$). Technology integration and organisational performance of large manufacturing firms is positively and significantly related ($r= .718^{**}$, $p=0.000$). Lastly, the results showed that relationship integration and organisational performance of large manufacturing firms is positively and significantly related ($r= .773^{**}$, $p=0.000$). This implies that an increase in supplier integration, customer integration, technology integration and relationship integration leads to an increase in organisational performance of large manufacturing firms, since the coefficients are positively related.

Regression Analysis

A regression analysis was conducted to establish the statistical significance relationship between supplier integration, customer integration, technology integration and relationship integration on organisational performance, which includes improved financial and operation performance of large manufacturing firms. According to Chatterjee and Hadi (2015),

regression analysis is a statistical process of estimating the relationship among variables. It includes many techniques for modelling and analysing several variable when the focus is on the relationship between a dependent and one or more independent variables. More specifically, regression analysis helps one to understand how the typical value of the dependent variable changes when any one of the independent variable is varied, while the other independent variables are held fixed (Gunst, 2018).

Table 2
Model Fitness

Model R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.887a	0.787	0.778	0.36411	

	Sum of Squares	df	Mean Square	F	Sig.
Regression	44.685	4	11.171	84.263	.000 b
Residual	12.065	91	0.133		
Total	56.75	95			

B	Std. Error	Beta	t	Sig.		
(Constant)		0.200	0.265	0.752	0.454	
Supplier integration		0.304	0.063	0.316	4.798	0.000
Customer integration		0.276	0.089	0.246	3.107	0.003
Technology integration		0.175	0.078	0.162	2.239	0.028
Relationship integration		0.368	0.083	0.316	4.408	0.000

The variables supplier integration, customer integration, technology integration and relationship integration were found to be satisfactory variables in explaining organisational performance of large manufacturing firms. This is supported by the coefficient of determination, also known as the R square of 0.787. This means that supplier integration, customer integration, technology integration and relationship integration explain 78.7% of the variations in the dependent variable, which is organisational performance of large

manufacturing firms. This results further means that the model applied to link the relationship of the variables was satisfactory.

The findings further confirm that the regression model is significant and supported by $F=84.263$, $p<0.000$) since p -values was 0.000 which is less than 0.05. A regression analysis was conducted to establish the statistical significance relationship between the independent variables, notably supplier integration, customer integration, technology integration and relationship integration on the dependent variable: organisational performance of large manufacturing firms.

$$Y = -0.20 + 0.304X_1 + 0.276X_2 + 0.175X_3 + 0.368X_4$$

Where,

Y = Organisational Performance

X_1 = Supplier Integration

X_2 = Customer Integration

X_3 = Technology Integration X_4 = Relationship Integration β_0 = Constant Term;

$\beta_1, \beta_2, \beta_3, \beta_4$ = Beta coefficients; ε = Error Term.

The constant of 0.200 showed that when supplier integration, customer integration, technology integration and relationship integration are held constant, organisational performance of large manufacturing firms would remain at 0.200 units. The regression of coefficients results show that supplier integration and organisational performance of large manufacturing firms is positively and significantly related ($\beta=0.304$, $p=0.000$). The results further indicated that customer integration and organisational performance of large manufacturing firms is positively and significantly related ($\beta=0.276$, $p=0.003$). The results further indicated that technology integration and organisational performance of large manufacturing firms is positively and significantly related ($\beta=0.175$, $p=0.028$). Lastly, results showed that relationship integration and organisational performance of large manufacturing firms is positively and significantly related ($\beta=0.368$, $p=0.000$).

Conclusion

The researchers sought to analyse the effect of supply chain integration on organisational performance of large manufacturing firms in Kenya. They concluded that supplier integration has a positive and significant relationship with organisational performance of large

manufacturing firms in Kenya. The study shows that customer integration has a positive and significant relationship with organisational performance of large manufacturing firms in Kenya. This positive relationship for customer integration implied that an increase in supplier integration will lead to a significant increase in organisational performance of large manufacturing firms in Kenya.

The researchers concluded that technology integration has a positive and significant relationship with organisational performance of large manufacturing firms in Kenya. This positive relationship for technology integration implied that an increase in supplier integration will lead to a significant increase in organisational performance of large manufacturing firms in Kenya. Lastly, the study concluded that relationship integration has a positive and significant relationship with organisational performance of large manufacturing firms in Kenya. This positive relationship for relationship integration implied that an increase in supplier integration will lead to a significant increase in organisational performance of large manufacturing firms in Kenya.

Recommendations

The following recommendations may be drawn from the study. First, managers in organisations should strive to better understand their supply chains and the various activities that enhance collaboration. This may lead to improved efficiencies which in turn improve their operational performance as well as improved financial performance. That manufacturing organisations should work closely with suppliers to increase the level of integration which in turn increases the operational performance through linking both suppliers and the organisation with advanced information system to facilitate the flow of materials, information, and experiences, in addition to control the inventory movement. Further, it is recommended that managers should pay greater attention to the practices that promote customer integration through the involvement of various stakeholders within the supply chain to enable formulation of strategies that would improve operational performance by leveraging on both internal integration and supplier integration.

It is recommended that customer relationship management practices be adopted as a way of improving and sustaining performance of organisations. The study found a strong positive relationship between customer relationship management and performance. It is therefore recommended that there was need for customer relationship management systems involving

information technology as the study determined that information technology was a key complement of customer relationship management.

It is recommended that firms that are yet to integrate IT system in their supply chain management should do so to enhance their competitive advantage. An augmentation of information technology systems is recommended as a way of leveraging the output of organisations. Information technology is an integrating tool that provides synergy and cooperation across the organisation functions and therefore should be applied holistically for the organisation to improve its performance.

It is recommended that manufacturing firms should conduct frequent supplier appraisal, for instance semi-annually or annually, for both new and old suppliers to assess their ability to meet the firms demand in terms of variety of products and services required and time frames. This research contributes to existing literature by expanding on the knowledge of the effect of supply chain integration on operational performance of large manufacturing firms in Kenya. This provides a basis for further research that may be carried out by interested parties.

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