



INFLUENCE OF SUPPLY CHAIN INTEGRATION IN RELATION TO SERVICE DELIVERY IN KIBABII UNIVERSITY IN KENYA

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ABSTRACT

This study was conducted at Kibabii University and it sought to establish the influence of supply chain integration in relation to service delivery. The study was deemed to benefit a number of people and institutions notably; the state corporations, policy makers, private companies, research bodies and future scholars. Descriptive research design was adopted in this study, with a target population of 320 respondents who were staff members of Kibabii University who were directly and indirectly involved, and interact with supply chain processes. Stratified Random sampling method was used to select 172 respondents from various departments to participate in the study. The study used questionnaires to collect primary data from the respondents. Data collected was checked for consistency, cleaned and coded for analysis. Presentation of data was done in form of graphs, tables and charts. The research findings indicated that supply chain integration has a positive effect on service delivery at Kibabii University. Null hypothesis for the study was dropped in favour of alternative hypothesis denoting significant contribution of independent variable to the service delivery. The study concluded that, institutions adopting supply chain integration experienced enhanced service delivery. Thus, this study contributed to knowledge in academia that adoption of supply chain integration led to enhanced service delivery. The study recommended that, institutions should undertake rigorous supplier evaluation before seeking a new supplier for outsourcing services. The organizations also can go extra mile to undertake vendor rating. Further research can be done on the challenges facing the adoption of supply chain practices as well as mitigation measures to the challenges.

Key Words: *Supply Chain Integration, Service Delivery, Kibabii University*

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INTRODUCTION

For a long period, major concern on supply chain practices has been focused on the manufacturing industry. However, the current information age characterized by stiff competition, diversification, unpredictable market forces and the urge to deliver value to customer has prompted the service industry to find innovative techniques to optimize their service delivery.

Wong and Karia (2010) in their study on competitive advantage and logistics explains that, in both developing and developed nations, the service industry contributes the largest share of GDP and has the highest potential for employment opportunities. Mwilu (2015) posits that the internal and external forces are exerting pressure on the public sector to show improvements in service delivery and performance at large. This has led to most of the public institutions, public universities inclusive to take interest in supply chain performance techniques and reporting for boosting performance and accountability.

Improvement in performance, accountability and service delivery as a whole is achievable by means of execution of supply chain concepts, which ensures optimisation of the supply chain, and efficient service delivery, increased responsiveness, and profitability in organizations. Therefore, many institutions take supply chain practices seriously as they are an integral part of realizing consistency and profitability.

Over the years, the nature of supply chain has drastically shifted to the point where institutions no longer compete against each other on the basis of quality as used to the case in the 19th century (Nelson, & Quick, 2011). However, the current source of business competition is far outside the walls of the firms, determined by how effective these institutions link their operations with the supply chain stakeholders and partners, being in a position to create effective business relationships with suppliers,

customers and other strategic partners anchored on long-term commitment.

Khalid, Zelibst and Bhadauria (2012) conducted a study on Green supply chain management practices in Germany. Their study affirmed that technological integration appeared to be the core supply chain management practices highly identified and is dependent on other practices. They also found out that, long-term relationship development, joint development, partner development learning, stakeholder management, enhanced communication and innovations are the major practices that contribute positively to performance of public institutions.

Elgazzar and Elzarka (2017) on their study in Egypt on supply chain management in the service sector affirmed that there were improvement of services in the service sector as a result of proper information dissemination as realised by information technology, customer relationship, supply relationship and service provision management. The study also revealed that there is absence of integrated comprehensive framework of service supply chain management in the service sector.

Studies conducted in Kenya have demonstrated mixed reaction of supply chain practices and service delivery. Mahulo (2015) carried out a research on the impact of supply chain management practices on performance with key target of cement manufacturing companies in Kenya. Using principal component analysis to determine major SC practices, seven components for supply chain management were extracted. The analysis established the seven components of supply chain management practices explain 84.55% of the performance of cement companies in Kenya.

Kimondo et al (2016) sought to establish supply chain management dynamics in the construction industry in Kenya focusing on national irrigation board. The study concluded that, prudent supplier selection, long-term

relationships, involvement of suppliers in product development, working with certified suppliers, strategic purchasing, supply network coordination, good interaction, logistics integrations and effective flow of information affect performance of construction industries.

In her study, Kaluki (2015) investigated how humanitarian organisations in Kenya employed the supply chain management practices. Using census study survey, she employed regression analysis as an inferential statistics. The results indicated that there was a strong relationship between supply chain management practices and service delivery. The study also found that Humanitarian organizations in Kenya have employed SCM practices, which has led to an increase in saving lives, increased ability to respond to different magnitude of disasters, good utilization of resources, and reduction in time taken for relief chain to respond to disasters.

Statement of the Problem

According to Amollo (2016) competition between organizations both locally and internationally have become greater within their supply chains than within the firms themselves. Public universities' Supply chains is not an exception for such competition, since they have to remain competitive to measure with their private counterparts. The means through which the institutions deliver services is of great consideration to ensure sustainability. Amollo (2016) quoting Li, Ragu and Rao (2006) asserts that a firm is able to maintain a competitive advantage over other firms through implementation of the supply chain practices. As such, the success of any organisation is determined by the supply chain practices employed and how they are employed to improve support service and operational delivery. However, just like most organizations today, public universities in Kenya are still struggling to identify the supply chain management practices to adopt and even so establish the impact of the adoption on service delivery.

In 2016, the government of Kenya through the ministry of education directed private universities to admit government sponsored students, a take which saw one thousand government sponsored students admitted to private universities through the Kenya Universities and Colleges Central Placement Service enrolment in the year. This move did not just shake the public universities, but awoke most institutions to adjust their competitive strategies in service delivery, in order to remain relevant and survive. Public universities in Kenya are cognizant of the fact that they need to be smart in their service delivery to be able to build confidence in their clients.

Hence, to remain relevant and competitive in academia, public universities must proactively assess and identify the SC practices that when adopted would be economically advantageous.

Most studies have been done on supply chain management practices and performance in various industries and institutions. However, so far none of the studies has been done on supply chain management practices and service delivery in public universities in Kenya. For instance, Kaluki (2015), in his study concluded that humanitarian organizations in Kenya have employed SCM practices which has led to an increase in life savings, increased ability to respond to different magnitude of disasters. While this study unearthed the benefits of supply chain management practices, it is skewed to humanitarian organizations whose supply chains and service delivery is different with those in public institutions.

In his study on supply chain management practices and organizational performance in public universities in Kenya, Kiplagat (2017) established that public universities face a number of challenges while implementing supply chain management practices such as inadequate management support, limited knowledge on SC practices and extra ordinary cost of adoption. This study however, factored the supply chain integration and organization performance as

well as challenges faced in adopting supply chain integration, but did not recognize the supply chain integration and green practices hence creating a gap to study these practices in public universities. Therefore, it is against this background that this study sought to determine the adoption of supply chain integration and service delivery in public universities in Kenya.

Objective of the Study

The objective of this study was to establish the influence of supply chain integration and service delivery in Kibabii University in Kenya.

Study Hypothesis

H₀₁: There is no relationship between Supply chain integration and service delivery in Kibabii University in Kenya

LITERATURE REVIEWS

Theoretical Framework

Systems Theory

Systems theory also known as General systems theory (GST) was found by Ludwig von Bertalanffy, a Hungarian biologist in 1972 (Bertalanffy, 1972). From a biological view, systems theory takes an organism as a unique system of interdependent structures and functions. In a sociological view, systems theory is a trans-disciplinary approach of an institution. This sociological systems in made of four things; attributes, objects, internal relationships between objects and environment (Kast & Rosenzweig, 2011).

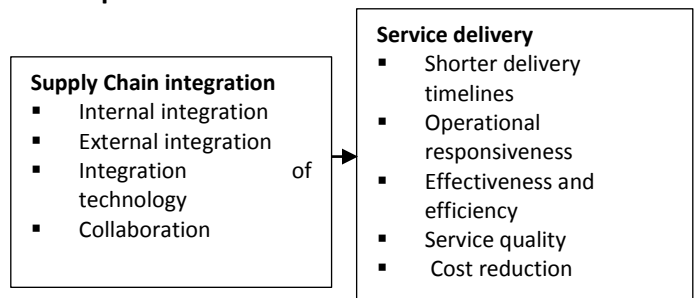
Systems theory holds that, an event is taken as a whole and not a function of its sub systems (Martinelli, 2001). Therefore, a system is made of sub systems whose interdependence and interrelationship move to the centre of the larger system (Steele, 2003). The focal point is the relationship among subsystems as a means of understanding the entity functioning, results and organization. The theory also sees organization as a dependant of the environment in which it exists, and

which entails like shareholders, agents and other objects beyond institutional control (Mason, 2007).

Systems theory encompasses different supply chain factors, which together results in supply chain linkages. It as well assists in the understanding extent to which system constituents and dynamics of supply chain relate. This helps in realising effective and efficient systems, prompt responsiveness, planning and execution of activities.

Public universities can be taken as systems that comprise of stakeholders like students, suppliers, lectures, regulatory authorities and the public. The public universities have several departments whose operations depend on each other. Therefore, the performance of public university does not rely only on one department but on the combined effort of all stakeholders and departments. The relationship of subsystems to function as a whole system support the idea of supply chain integration. In supply chain integration, supply chain participants work together as whole system though individually are components of the supply chain. Thus, systems theory was used in supporting supply chain practice integration and the perceived influence on service delivery.

Conceptual Framework



Independent Variable Dependent Variable

Figure 1: Conceptual Framework

Source: Author (2019)

Empirical Review

Supply Chain Integration

Supply chain integration (SCI) is described as the extent of collaboration within the organization's

supply chain partners. SCI practices includes the incorporation of crucial operations in a business setup which involves provision of goods and services, dissemination of information, creating customer satisfaction through value addition and meeting stakeholders objectives (Gunasekaran & Ngai, 2004). Supply chain integration (SCI) according to Dotson and Allenby (2010) is a concept that can be explained using porter's value chain, which holds that, making activities effective in all business undertakings increases efficiency hence improvement in service delivery.

According to Katunzi (2011), SCI is conceived as a mechanism of redefining and promoting coordination through timely dissemination and sharing of information as well as coordinating institutional resources. Therefore, SCI involves collaboratively managing both internal and external environment of an organization together with all its practices in a manner to ensure timely delivery of service and dissemination of quality information to the related parties in the supply chain.

Supply chain integration is multidimensional concept that mainly includes internal integration and external integration (Flynn et al., 2010). Droge et al. (2012) holds that, the external integration as a supply chain practice can be termed customer integration and supplier integration. Supplier integration includes provision of information and directly taking part in decision making. This supplier integration is characterised by collaborative relationship of both the consumer and upstream supplier. The collaborative relationship has been found to factor in programs and initiatives geared towards reinforcing connections between the parties.

According to Wisner et al. (2008), customer integration involves flow of materials, information and services as well as the reverse flow of information from customers to vendors and resources flowing forward. In particular, customer

integration entails having the knowledge on the linkages between vendors, products and processes as well as the customer business. Supplier involvement and commitment are made to help the consumer have a higher competitive standing.

Thus, customer integration takes into account; including the customer in choices regarding to products offered by the vendor and also involves the strategies and methods used to solidify the customer-supplier integration.

Internal integration is the association of all key and functional departments/areas of an institution. Internal integration is built on the understanding that organizational departments and parties work as a cohesive process. Jacobs and Swink (2011) holds that, greater level of supply chain integration realises increased performance. This improved performance is to be expected when the same focus is shifted to the linkages between integration and service delivery.

METHODOLOGY

The study adopted a descriptive research design. Descriptive research is defined by Bryman & Bell (2011) as the form that realises information that can accurately portray the participants. It describes a population in terms of its relation to the variables. The study's target population was members of staff of Kibabii University in various functional departments. The study used a sampling frame of all the 320 staffs from departments within the University, which directly or indirectly interact with supply chain processes and practices. The study relied on primary data. This primary data was realised using a semi-structured questionnaire. Mugenda & Mugenda (2010) denotes that questionnaires are extremely simple, easy to administer and suitable to utilise. The data from close-ended questions were computed using the Statistical Package for Social Sciences (SPSS) to facilitate quantitative analysis.

FINDINGS

Supply Chain Integration

Five – Point Likert scale was used to gauge the level of agreeing from the respondents on the adoption of

supply chain integration at Kibabii University. The findings were as shown in table 1.

Table 1: Supply Chain Integration

Supply Chain Integration	SD		D		N		A		SA		Total	
	F	%	f	%	f	%	f	%	f	%	f	%
The speed of service delivery has been enhanced due to the supply chain integration process	0	0.0	0	0.0	20	16.3	72	58.5	31	25.2	123	100
The integration of technology, people, business and processes has enhanced the university's competitive edge in the current digital age	0	0.0	0	0.0	12	9.8	74	60.2	37	30.1	123	100
The university has realized cost reductions as a result of integration of technology, cross-functional units, processes and suppliers	0	0.0	6	4.9	18	14.6	81	65.9	18	14.6	123	100
We have a compatible communication and information system internally and with our suppliers which enhance collaboration	0	0.0	20	16.3	78	63.4	25	20.3	0	0.0	123	100

Supply chain integration enhanced service delivery. This statement was strongly agreed by 25.2% and agreed by 58.5%. However, 16.3% expressed neutral rating on the statement. Similarly, 60.2% agreed that the integration of technology, people, business and processes has enhanced the university's competitive edge in the current digital age. A proportion of 30.1% strongly agreed while 9.8% were neutral.

The findings further indicated that, with integrated supply chain, The University had realized cost reductions as a result of integration of technology, cross-functional units, processes and suppliers. This was inferred from the respondents rating, where 65.9% agreed and 14.6 strongly agreed with the statement. Respondents tallying to 14.6% were neutral while 4.9% disagreed.

A big portion of the respondents neither agreed nor disagreed that the institution has a attuned communication and information system with the suppliers. This was found from 63.4% of those who were neutral. A fifth of the respondents agreed having compatible systems with the suppliers while 16.3% disagreed with the assertion.

These findings confirmed that the institution had adopted supply chain integration in all its operation. It was through the supply chain integration, that the respondents pointed out that service delivery had been enhanced. This was evidenced by increased supplier responsiveness, reliability and trustworthy. The supply chain integration had also been cited as a pillar for gaining competitive edge. These findings agreed with Jacobs and Swink (2011) who holds that,

greater level of supply chain integration leads to increased performance. The improved performance is to be expected when the same focus is shifted to the linkages between integration and service delivery.

Service Delivery

Adoption of supply chain practices was deemed to affect service delivery in public universities. To affirm

Table 2: Service Delivery

Service Delivery	N	Mean	Std. Deviation
There is improved service quality from various departments	123	4.18	.528
There is improved instances of customer satisfaction	123	4.15	.355
Adoption of SC practices has shortened the delivery time	123	4.09	.640
Information sharing has increased among the departments, improving operational efficiency	123	3.75	.775
There is an increased level of flexibility that influences the operations	123	3.51	.670
Decision making at the institution is undertaken at an increased speed	123	3.46	.969
There is a reduction of overall administrations costs	123	2.75	1.178

After the adoption of supply chain practices, respondents indicated to a great extent that they have achieved; improved service quality ($\mu=4.18$) increased levels of customer satisfaction ($\mu= 4.15$) and shorter delivery time ($\mu= 4.09$).

To a moderate extent, it was evidenced that supply chain practices has led to high increased information sharing with other department ($\mu= 3.75$), increased level of flexibility ($\mu= 3.51$) and increased speed in decision making ($\mu=3.46$). Decline in overall administration costs was rated to a small extent ($\mu=2.75$).

Hypothesis Testing

H₀₁: There is no relationship between Supply chain integration and service delivery in Kibabii University in Kenya

SUMMARY

Supply chain integration is a significant and relevant supply chain practice in relation to service delivery based on the findings of this study. The findings of the study pointed out that supply chain integration has

that indeed SCP had an impact on service delivery, respondents were asked to express the extent to which the university has achieved the mentioned milestones on service delivery. The findings were as shown in table 2.

enhanced service delivery and has contributed positively towards gaining competitive edge. Further, the respondents acknowledge that university has realized cost reductions as a result of integration of technology, cross-functional units, processes and suppliers.

There are a number of benefits on service delivery realised from the current adoption of supply chain practices. To a great extent, the institution had achieved resource utilization, precise demand anticipation on goods and supplies, increased levels of customer satisfaction, shorter delivery time, high efficiency of assets utilization, enhanced interdepartmental sharing of information, drops in the operational losses and wastes in regards to service delivery and increased level of flexibility.

CONCLUSION

Supply chain integration was found to affect service delivery positively. This implied that, institutions which adopted it had enhanced service delivery in terms of communication, increased supplier reliability and timely delivery of goods and services. Therefore a

conclusion was reached that supply chain integration is indeed significant practice that leads to enhanced service delivery.

RECOMMENDATIONS

Supply chain integration was found to impact service delivery positively. Therefore, this study recommended both public and private institutions as well as service and product sector to embrace supply chain integration as it was found to affect performance positively.

Suggestion for Further Research

This study was undertaken to establish the adoption of supply chain integration and service delivery, a

case study of Kibabii University. In order to confidently generalise the findings of this study, a similar study can be undertaken as a survey of all public universities. Further research can be undertaken to establish the other factors that affect service delivery. The study did not consider the problems faced by the institutions while attempting the adoption of the supply chain integration in question. Thus, further research can be done on the challenges facing the adoption of supply chain integration and mitigation measures to the challenges.

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