Influence of Supply Chain Management Strategies on Performance of Medical Supply Chain Organisations in Kenya

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ABSTRACT

Institutions within the medical supply sector have consistently faced substandard supply chain results because of failure of timely deliveries on the part of suppliers failing to quickly respond to deliver medical shipments. This indicates the procurement role having inadequacies as a key component of an organization since it does not deliver on maximized effectiveness and a reduction of costs based on poor supply chain management plans. A critical purpose of the study was the intention to identify influence of supply chain management strategies on performance of medical supply chain organisations in Kenya. More so, the analysis deals with the degree information integration impacts on Organization performance; to evaluate the impact of warehousing on performance; to examine the impact of outsourcing on performance; and to evaluate the influence of lean supply chain on performance of medical supply entities across Kenya. Direction will through be relying on the resource-based theory as well as the supply chain constraints principle. The analysis will adopt a descriptive study approach; with the targeted size comprising of 30 medical supply entities. The study participants included 2,529 staff of pharmaceutical supply chain entities within Kenya. Determination of the sample group was by Yamane’s concept that led to a group of 345 participants. Accessing the participants was by stratified and simple random sampling approaches. Towards indicating dispersion and central tendency, standard deviation and respectively, with the inferential statistics being analysed by multiple regression and correlation analysis. The study findings reveal that performance of medical supply organizations in Kenya was significantly related with supply chain information integration (p < 0.05), warehousing (p < 0.05) and outsourcing. Despite this, the association among differentiation strategy and performance was insignificant at p > 0.05 but only significant at p <0.1). It was also found that while lean supply chain had a negative influence on performance (t = -0.528, p >0.5) information integration, warehousing and outsourcing had positive influence on performance (information integration: t = 16.461, p <0.05; warehousing: t = 19.671, p <0.05; outsourcing: t = 15.528, p <0.05). The result of these outcomes is that the leadership across medical supply organizations in Kenya need to adopt information integration, warehousing, and outsourcing, which would positively contribute to performance. Medical supply organizations in Kenya should continue emphasizing on supply chain strategies. The outcomes of the study may assist organisations in drawing plans or improving existing strategies governing supply chain management across institutions.

Key Words: Supply Chain Management, Warehousing, Outsourcing, Lean Supply Chain

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1.0 Introduction

Supply Chain Management (SCM) continues to gain traction from the academia globally; the situation has seen researchers trying to assess the connection among basic supply chain strategies and supply chain performance (Handfield, Cousins, Lawson, & Petersen, 2015). The basic supply chain strategies comprise of the traditions with the ability to enhance value within organisations. According to Chang (2016), there exists a variety of these strategies although most of them have been reduced to client relations management, green supply chain management, lean supply chain management together with IT and outsourcing. Adoption of the various traditions of SCM enables the attainment of positive and desirable results (Carr, 2016). Dubey, Gunasekaran, & Ali, (2015); Handfield, Cousins, Lawson, & Petersen, (2015); Elwan Ibrahim & Ogunyemi, (2012) advance that in the recent years, the topic of Supply Chain Management has been greatly debated by the academia across the globe; this has led to a section of them going further to explore the associations existing among supply chain activities and institutional results, operations and the efficiency of supply chain. Institutions attain their results from a rapid achievement of the established standards identical to their purpose. Based on Maduenyi, Oke, Fadeyi, and Ajagbe (2015), the standards comprise of economical and non-economic measures. Institutional outcomes may be indicated by importance, effectiveness and monetary strength Beske-Janssen, Johnson, & Schaltegger, (2015). Importance details the extent an institution’s key players consider the significance of the firm to their desires. Efficiency details the extent the institution remains productive towards the attaining its plan and intentions refers to the level an institution is productive towards realizing its set out agenda. Effectiveness elaborates the proper utilization of utilities and monetary strength details the viability of an institution going forward (Epstein &McFarlan, 2011).

According to Gibson et al., (2010) organisation performance forms the last phase of an institution and carries; the desire of specific goals to be met, the span for realizing these goals as well the success of attaining these goals. Koontz and Donnell, (2003), equally, advances that organisation performance entails the capacity of an organization or firm to realize goals like increased profitability, commodity quality, increased market, positive financial indications sustenance during turmoil. Therefore, a supply chain strategy is relied upon to improve organization performance of medical supply organizations in Kenya. As a union made up of scholars and institutions across varied sectors, the Global Supply Chain Forum (GSCF), profiles SCM as an activity that gives a framework on the management of relations with the suppliers. This management of relations with suppliers is overseen by a group drawn from other responsibilities together with memberships from individual firms within the supply chain. Equally, it translates to management processes within the supplier relations management world being guided by other department in an institution. According to Wang (2007), it is from cross-functional coordination that awareness of the clients and suppliers is reviewed during supplier relationship management plans.

The situation presently has shown market rivalry in international markets being more intense among supply chains compared to institutions. Based on this, SCM has gradually become a significant aspect for productivity within organizations. In the same regard, for collective effectiveness to be reported, both external and internal partnership collaborations in the entire supply chain must occur (Friemann & Verhasselt 2012). An ideal supply chain ought to offer a connection between association’s membership and their assigned duties in order to record successful balance between demands and supply Alam et al., (2012). Based on advancements by Reiner and Hofmann (2006), processes towards enhancing productivity have been further triggered by supply chains apart from firms’ individual perceptions. Ross (2013) maintains that desirable SCM traditions and plans has
continued to gain relevance by institutions when it comes to securing competitive market edge and further enhancing institutional results because market rivalry nowadays goes beyond firms, but between supply chains. Their contribution more so in staying competitive ahead remains relevant as a result of market rivalry across firms that is impacted by supply chain management. As a result of universalization, institutions ought to stay competitive locally and internationally thus crucial for institutions improve their effectiveness internally to boost the supply chain ability. According to Christopher (2016), institutions ought to outshine their business rivals in effectiveness and efficiency. Further, institutions need to have an awareness on the principles and traditions of supply chain management with an aim of realizing competitive market edge and eventually increased profitability (Qayyum & Ashraf, 2015).

Globally, India is one of the nations with little studies exploring SCM activities, and even presently supply chain traditions across the nation remains underutilized; especially with regards to the public food supply chain (Srivastava, 2006). Universally, from recognition of the impact of Supply Chain Management toward organizations, it is recommended to monitor the influence of the phenomenon towards institutional results (Green et al., 2006). According to Mentzer et al., (2000), the concerns linked to which aspects are connected to Supply Chain Management activities and its influence towards institutional results remain greatly unidentified. Existing analyses have indicated that the influence of Supply Chain Management tradition towards institutional results and market edge applying five supply chain management traditions as client relationship, key supplier collaboration, knowledge sharing capacity, postponement and quality of knowledge sharing to represent Supply Chain Management activities (Li et al., 2006). In the African continent, organizations have embraced varied supply chain plans to improve on their results both regionally and globally. In the Sub-Saharan Africa, national and devolved governments continue to adopt partnerships as well as integrative supply chain plans with the aim of enhancing delivery of service, Oyuke (2014). Some of the African nations with notable success stories from Supply Chain Management plans include; Nigeria, Ghana, Malawi and South Africa. There is a position by Li et al., (2016) arguing that across South Africa, engagements with supply chain players and specifically including them during commodity modelling and creation allows firms to limit production expenses as well as risk management in supply chains. Increased sharing of knowledge and awareness within the loop enables flexibility within the supply chain and thus positions the leadership well towards making better determinations in addressing the dynamic market setting and client trends. Within a Supply Management Chain in the catering sector, efficiency remains a critical factor towards a productive result across South Africa, especially with the perishables goods. Structured flexible supply chain enables McDonald’s (USA’s fast food chain) reduce wastes and manage risks, whereas planned adoption of improved IT systems has the ability of enhancing current platforms to realize market advantage (Chen & Ouyang, 2011).

The profile of supplier relationship management deals with nurturing client associations with major suppliers in order to minimize on expenses, come up with innovative commodities and a creation of value for everyone dependent on a dual engagement to prolonged partnership and a common prosperity. Within sophisticated association in big firms like SITRAFER and Camrail, there could be a necessity to guide various units set out in the expansive region. SITRAFER remains of the biggest maintenance and logistics firm in Cameroon, and also a partner to Camrail and supplier of rail accessories. From imaginations, the association among the firms appears structured and intricate, thus the need for cross-functional group from the two firms to regularly caucus to determine commodities creating shared prosperity in new economies, new commodities, success
and profitability. For this association to work there must be input from the Chief Executive Officers of both institutions (Lambert, 2008).

According to Czarnitzki, Hanel, & Rosa (2011), big manufacturing industries across the sub-Saharan Africa region continue to face a number of obstacles largely linked with inadequate establishment of SCM traditions and activities leading to a stagnated development of the industrial sector. Locally, in Kenya, majority of the local establishments are reluctant to adopt SCM traditions like IT, outsourcing, and lean supply chain denying them existing basic supply chain traditions with the ability to increase value towards institutional results. Moenga (2016), for example advanced that institutions recognize positive SCM activities but still fail in adopting them. Across the African continent, a steady emergence of pharmaceutical firms and further advanced trends has been observed as the growing population continues to record new illnesses. According to Frost and Sullivan (2017), the most common infections in Africa are; tuberculosis, malaria and HIV, and these infections continue to human race since its eradication is being hampered by lack of monetary resources as well as facilities. This eventually sets up a good ground for pharmaceutical firms to thrive. In Kenya, statistics based on the Kenya Pharmaceuticals and Healthcare report of 2017 indicates that universally the medical sector being one of the steadily emerging areas worldwide. A number of aspects drive this phenomenon and this includes; new infections, an older age, drug resistance, poor lifestyle habits, ignorance to disease prevention and new habits as a result of advanced technology.

Access to medical care is still a crucial and significant plan allowing availability of key medical services due to the impact of medication towards public health. A 2018 report by the WHO (World Health Organization), indicated that both sub-standard SCM and procurement plans significantly hampered better delivery of medical services to the public. This mandates the presence of a strong supply chain structure, open communication system schedules and ideal skill absent in most countries. Normally supplied are greatly impacted due to increased temperatures, expiry duration and poor storage platforms. Problems around preventing and tackling reduced numbers for contagious diseases impacting established health standards continue to arise consistently. Additionally, the World Health Organization report advances that substandard SCM activities is consistently resulting to wastages thus affecting availability of vaccines and other drugs like the antibiotics.

Locally in Kenya, the medical sector continues to face a number of challenges. As a result of the ballooning middle class together with the growth of the economy, there is a sustained pressure for improved and accessible medical care ability. All the fields within the medical care industry has exhibited increased rate of activities and further a desire for improved and modest medical infrastructure. Not left behind is the private sector, which has also indicated increased calls for advanced international standards and medical tools. All these occurrences have resulted in the call for integration of Supply Chain Management practices within the healthcare sector.

Both locally and internationally, the pharmaceutical supply chain industry continues to report increased business rivalry within the markets. According to Nandama (2010), it is an ideal science oriented field with consistent release of new commodities as a result of the input of research together with increasing knowledge on scientific occurrences. Divisions making up the pharmaceutical supply chain industry are divided into; processing, market distribution and lastly retailing. The processing phase includes the transformation of raw materials into usable
commodities; distribution involves the transportation of the finished medical products to medical facilities and lastly retailing details trading of the medial product for consumption by the patients.

Through the application of Good Distribution Practices (GDP) as well as Good Manufacturing Practices (GMP) and taking into account WHO Quality ISO Certification Standards, majority of the drug makers possess the ability to consistently supply the market with drugs. Locally the Kenyan pharmaceutical sector imports around 95% of its raw materials, revealing the low contribution from the local sector, this is according to the World Health Organization. 2012 report, the second East Africa Commission Regional Pharmaceutical Manufacturing Plan of Action 2017–2027 report released in 2018. In Kenya, KEMSA (Kenya Medical Supplies Agency) has the sole mandate of distributing medical products to public institutions because it is a parastatal under the Kenyan Ministry of Health; while MEDS (Mission for Essential Drugs and Supplies) which is a charitable institution is responsible for supplying medical products to private faith-based facilities, devolved government and Non-Governmental Organizations. Publications by both UNIDO in 2012 and USAID in 2015 ranked Kenya among the top producers of medical commodities within the COMESA nations, contributing around 50% to the regions’ market share (UNIDO, 2012). In 2016, a report by the Kenya Pharmaceutical & Healthcare revealed that out of the fifty regionally based pharmaceutical firms across the COMESA region, thirty are locally stationed in Kenya; with Uganda, Tanzania, Rwanda, Democratic Republic of Congo, Ethiopia, Comoros and Burundi among other nations forming the export market.

1.1 Statement of the Problem

Institutions within the medical supply sector have consistently faced substandard supply chain results because of failure of timely deliveries on the part of suppliers failing to quickly respond to deliver medical shipments (Mwilu & Chirchir, 2013). This indicates the procurement role having inadequacies as a key component of an organization since it doesn’t deliver on maximized effectiveness and a reduction of costs as a result of poor Supply Chain Management plans. As a result of these poor plans within the healthcare sector, there is a consistent pattern of untimely deliveries, large stock outs that in the end leads to inventory wastes. The cause of this is the failure of medical supplies firms locally to foresee products required machinery and their capacity. According to Manyenze (2013), this being a concern linked with securing of timely delivery of commodities from the supplier thus poor SCM lacking predictability on demand and supply awareness within the supply chain and in the end the bull whip effect occurs.

A variety of studies covering SCM plans within healthcare supplies companies have existed (Sandberg, 2007) as well as established retailing firms (Sandberg and Abrahamson, 2010) which have revealed the significance of supply chain management strategies. A study by Kyengo (2012) revealed the entire results of Nation Media Group Ltd (NMG) is largely impacted by the ability of the institution on delivery of commodities to a larger base and in a timely manner since any slight delay affects the revenue pool and it can only be resolved through a detailed supply chain framework. An analysis by Mwingi (2011) and Andebe (2011) revealed that communication of knowledge among the retailing units and the manufacturing unit is crucial within the global market. Majority of the analyses have failed to detail impacts of SCM towards institutional outcomes.

Supply chain performance inefficiencies lead to increased costs and sometimes losses for dairy firms. In recent years, food loss within a supply chain has continued to be a major concern as a result of socio-economic and environmental influences. In developing markets, the losses largely take place during the initial phases in a supply chain process like, medical supplies awareness
(Kemokai, 2015). For firms to attain superior supply chain performance there must be adoption of efficient stock control plans to be executed. Despite this, institutions encounter obstacles during the control of demand and supply of the stock so as to fulfil the client’s desires. Further, institutions tend to stay away from incurring storage costs of the stock products. As a result, studies have illustrated the existence of a performance concern within the healthcare industry locally in Kenya. This analysis advances that the outcomes concern could be born out of reduced adoption of the basic supply chain plans. According to Christopher (2016) supply chain complements the desired stability of institutions the best compared to other existing departments within an institution. It is the intention of the analysis therefore was to evaluate the influence of supply chain management strategies on performance of medical supply chain organisations in Kenya.

1.2 Objectives of the Study

The main objective of the study was the intention to identify the influence of supply chain management strategies on performance of medical supply chain organisations in Kenya.

The listed below objectives guided the study:

i. Determine the influence of information integration on performance of medical supplies organizations in Kenya.
ii. Evaluate the influence of warehousing on performance of medical supplies organizations in Kenya.
iii. Examine the influence of outsourcing on performance of medical supplies organizations in Kenya.
iv. Evaluate the influence of lean supply chain on performance of medical supplies organizations in Kenya.

2.0 Literature Review

2.1 Theoretical Review

The theoretical review sub-section details the theoretical concepts anchoring the study. The study will therefore conform to resource based theory, theory of supply chain constraints and transaction cost theory.

2.1.1 Resource Based Theory

This principle is a brainchild of Penrose, and was developed in 1959, being a theory that analyses and determines an institution’s strategic edge relying on the examination of its distinct assets pool, expertise, competences and market awareness as an institution. The theory advanced is that for an institution to secure a market competitive edge, it ought to be a mutual existence of the distinct firm capabilities with the dynamic market surrounding (Barney 1991, 2014; Grant 1991; Wernerfelt 1984). From the theory, business rivals secure an advantageous market placement since every institution utilizes a unique pool of utilities and competences (Barney, 1991). The position by the RB principle is that it is from an institution’s pool of utilities that a prolonged market edge over business rivals is attained. The profile of a resource in this context is that which is owned by a side and offers strong or weak points to an organization. In order for this scenario to take place, it is critical that the utility is imperfectly movable, non-duplicable and can’t be substituted. There is a connection of these utilities to the institution’s market edge over rivals since they ensure increased
profitability (Peteraf, 1993). According to (Barney, 1991), an institution’s prolonged market edge is founded on their unique, non-duplicable and non-substitutable utilities; with their utilization forming the difference.

Further, an institution’s utility ought to be unique, valuable and largely non-duplicable so as to promised prolonged competitive edge over rivals, Barney (1991). A 1993 paper by Peteraf details four aspects anchoring prolonged market edge over others: these are; better utilities, ex post limit to competition, imperfect resource mobility and ex ante limits to competition. Based on Peteraf and Barney (2003), Barney’s (1991) and Peteraf’s (1993) positions remain true immediately certain conditions are clearly profiled. This theory supports the utilisation of resources to enable execution of basic supply chain activities and thus allow improved outcomes of an institutions. Relevance in the theory comes with establishing the type of utilities to be acquired, the critical abilities desired by institution in the management and of utilities through focus on successful supply chains.

2.1.2 Theory of Supply Chain Constraints

The determination of constraints continues to be a successful manner of maximizing an institution’s outcomes. This principle based on Goldratt (1990), remains to be a leadership instrument identifying management structures as successful in realizing its objectives from a reduced pool of limitations. Often, one limitation exists and this theory applies a detailing plan of determining the limitation and undertaking necessary adjustments based on it. This theory of constraints is made of five major phases; determining the existing constraints, exploration of the existing constraints, subordination and synchronization of the constraints, elevation of the existing constraints and going back to the first step in case in the previous steps, a constraint has been broken, (Goldaratt (1990).

The role of these phases is to ensure desirable adjustments focus on the institution’s constraints. This principle becomes handy with regards to this analysis since it is connected to the study’s intentions when it comes to supplier relationship as well as outsourcing. With the limitations facing an institution, there is the probability to have impacts on expenses, delivery timelines, client satisfaction and the entire results of an institution. There is the probability of the relation between the institution and the suppliers being impacted whenever the institution possesses increased limitations compared to when they are reduced. Further, suppliers are likely to be demoralized the moment the institution continually reject their raw materials, as well as the failure to pay on time as a result the existing limitations. There is the likelihood of constraints resolution as a result of positive partnerships and engagements among an institution and the suppliers. Upon the resolution of constraints, there will be an enhancement of service delivery thus better client fulfilment levels. There is relevance by the theory to the analysis since it helps determine the indicators an institution has established towards overcoming limitations within their supply chains. Additionally, the concept has been applied in this analysis to establish if institutions determine the activities for outsourcing in order to overcome the constraints.

2.1.3 Institutional Theory

The principle is a brainchild of Powell and DiMaggio, and deals with the processes where the system, regulations, procedures and standards are established as a template for desirable conducts. An institution’s actions ought to fulfil the lawful regulations guiding them. The statutory regulations as well as the clients force institutions to implement activities that are friendly to the environment (Laosirihongthong et al., 2013). Firms have continued to formalize activities around reverse logistics because of forces that are internally or externally based. According to (Cox, 2010), the forces resulting resulting from duplicating the activities of rivals because institutions tend to apply
what has been proven to be successful in other institutions operating in a similar area are mimetic. (Barua & Whinston, 2009), advances the expenditures probable to be incurred institutionally is lowered.

Institutions formalize activities around reverse logistics since there is the fear of losing market shares to rivals and equally the knowledge of the result of failing to comply with established environmental regulations, Carter, Smeltzer and Narasimhan (1998). As a result of concerns and other forces, institutions are compelled to evaluate possible environmental effects along their processes. According to (Di Maggio & Powell, 1983), there exists organizational processes likely to lead to the leadership deciding to implement environmental management schedules; these are normative, mimetic and coercive. The theory benefits this analysis since it enables an understanding when it comes to the desire to implement processes for the management of logistics around supply chain through the emphasis on the factor leading organizations to come up with integrated operations processes. A number of the influences are in the form of normative pressures, and are like client demands as well as economic demands. As a result of the context of FMCG, there is critical desire for proper structures when it comes to logistics management to be adopted to improve survival. According to the theory, there is a suggestion that institutions ought to implement logistics management platforms in order to boost their supply chain outcomes.

2.2 Literature Review on Independent Variables

2.2.1 Information Integration and Organisation Performance

A study by Anzam, Prajogo and Olhager (2009) examined influence by supply chain information integration and logistics integration towards institutional outcomes. Data collected across 232 Australian companies underwent analysis and revealed logistics integration having a major impact towards the operations results. The capability of IT and information sharing capacity had a major impact towards logistics integration. Additionally, key supplier relationships had both direct and indirect impacts towards operational results of the organization, with an indirect impact through logistics and information integration. A study by Okore and Kibet (2019) exploring the impact of knowledge sharing towards supply chain results across the hospitality sector in Kakamega employed an explanatory survey model with the population group comprising of 459 staff stationed across four tour firms and five hotels in the County. After data collection (by use of a questionnaire) and analysis, the investigator established that partnership impacts supply chain results. The conclusion from the analysis was that information sharing impacts supply chain results across the tourism sector. There was a recommendation by the study for the department of supply chain to implement suitable networking plans so as improve client fulfilment as well as supply chain success thus improving accessibility to data on the management of hotels and the suppliers as well. A study by Mathae, Paul, & Mbura, (2018) analysed impact of bullwhip on the results of Kenyan dairy industries. A case study design approach was applied, thus limiting it to Nairobi’s New Kenya Cooperative Creameries Ltd Headquarters. It employed a descriptive study model with every department at the facility forming the target population, a number that came to 167. Stratified sampling technique was utilized in arriving at 117 as the sample size. The major data collection tool was a structured questionnaire consisting of both open-end and closed questions pretested earlier. For the calculation of mean scores, percentages and standard deviation, descriptive analysis approach was utilized during the analysis of data. The findings revealed knowledge having a significant impact towards the results of New KCC Ltd with shortage gaming following closely,
and then inventory management approaches; the final was distribution channel that negatively impacted the results of New KCC Ltd.

2.2.2 Value Added Logistics and Organisation Performance

Based on (Bowersox et al., 2010), the profile of value-added logistics revolves around a special or certain processes institutions may collaboratively undertake for purposes of enhancing their success and prolonged stay; enabling maximum market edge within economies. Aside from its potential towards realizing specification, there is also ability by value added logistics to enable horizontal integration of the supply chain. There is difficulty by value-added services to undergo generalization based on the awareness that services ought to be client related and client’s awareness of quality impact client levels fulfilment (Bowersox et al., 2010). (Chen & Notteboom, 2012a), advances the example of Nike producing and delivering customized products to individual clients for purposes of adding value towards a commodity. Logistics service givers could be classified into three basic forms as a result of variations in basic competences as well as network establishments: logistics intermediary institutions, carriers and 3rd party logistics institutions, Cui and Hertz (2011). There is likelihood for logistics intermediary entities to participate in value added logistics (VALS). Different forms of value added services provided by logistics services providers continue to be determined in recent publications; these include repackaging, labels, assemblies, QC, order picking, cross docking, reverse logistics, distribution, localising and customising, installation and instruction, purchasing/procurement, price tagging, and offering information services (Bowersox et al., 2010).

Chen and Notteboom (2012a), advances those institutions gain from logistics advantages in their operation of value added services properly by enhancing competition in economies, like balanced logistics costs and service level, minimised response time, minimised transportation costs and risk costs, flexibility to unpredictable market demand, and minimised information costs for customised value added services. For example, certain VALS customisation roles when it comes to the European economies must be undertaken closer to real markets since market fragmentation renders source-based prohibitive for many ranges of goods (Rodrigue & Notteboom, 2010). (Hilmola & Lorentz, 2011), advances that performance of value added services properly, and with better infrastructural ability, improved market accessibility, or presence of desirable labour force could eventually enhance the success, improve and reduce the transaction cost of SC. Also, there is the ability of ensuring product safety, where the proper location for value added services promises commodity safety along the shipment process. Certain commodities are extremely fragile and heat sensitive, calling for suitable package along the transportation process for ensuring proper standard as well as reducing damages along the transportation process (Chen & Notteboom, 2012b).

2.2.3 Outsourcing and Organisation Performance

Research by Ramanathan and Gunasekaran (2014) advances that the efficiency of outsourcing may be indicated with regards to the effects it has towards institutional results and client fulfilment. Institutional results from an outsourcing angle may be indicated by evaluating the extent of realization of desired goals as well as existing technological gains of outsourcing contract. Client fulfilment may be regarded as the acceptance levels or alternatively or the fitness among a client requirement and the result from outsourcing. The success from outsourcing may be indicated through the application of platforms like; accessibility to skilled labour, human and technological utilities economies of scale, reduction of risks in technological changes and improved accessibility towards important IT systems (Lee & Choi, 2011). Analysis by Lawson, Tyler & Potter (2014)
indicated outsourcing leading to improved ability to face changes within the market setting and better delivery of service. Existing advantages related to outsourcing based on studies are reduction of costs (Cheng et al 2014), improved attention on critical capabilities (UN & Asakawa, 2014), advanced and enhanced profile of commodities (Lawson et al, 2014) and lastly a minimized chance of technological changes (Dahlander & Gann, 2010). According to Mutua (2012), outsourcing has led to a reduction of cost, enabled the business development of firms, further eliminating wastes and allowed organizations to pay attention to their critical operations.

An analysis undertaken by Hamlett (2018) asserted that institutions attain improved resilience whenever they offer to outsource their production operations to a contracted manufacturing agent. Further advancing that contracted manufacturing agents frequently process commodities to a pool of clients; including business rivals thus possess the potential to increase production compared to the original companies and normally act faster to improved production needs. A study by Mungala (2014) undertook an analysis with the intention of establishing the impact of outsourcing determinations towards institutional results of Unga Group Limited. The analysis was anchored on the Resource-Based View theory and utilized an explanatory survey model in targeting sixty management workforce across finance, human resource, procurement and marketing departments in accessing the participants, census approach was applied and later questionnaires employed in the collection of insights. Analysis of data was through descriptive, regression and correlation analysis. Deductions from the results were that outsourcing determinations influence institutional outcomes.

A study by Kivuva (2018) conducted an analysis analysing the impacts of outsourcing platforms across the petroleum industry in Kenya with focus majorly on the oil marketing companies. The review employed a descriptive study model with the population consisting of thirty oil firms across Kenya, from the finance, legal, head of marketing and head of operations departments, leading to a population size of 120 managers. It undertook a census approach due to the reduced size of the participating group. Collection of primary data was through the administration of questionnaires, and later analysis of data achieved by the use of statistical packages for social sciences (SPSS) and Microsoft excel. Deductions from the analysis were that outsourcing impacts institutional results slightly; which might have been occasioned by the variables proving to be unsuitable in indicating the increment rate.

2.2.4 Lean Supply Chain and Organisation Performance

According to Mangan & Lalwani, (2016) the profile of Lean Supply Chain is linked to any supply chain that lacks additional activities adding no value to the supply chain and is relevant since it means unsuitable procedures are eliminated thus reducing costs on production. Any lean supply chain platform is put in place to adopt superlative, unique client winning value at a minimum cost from an integrative, immediate mesh of commodity transfer, preferences on demand, crucial market awareness and capability of logistics delivery (Cooper, 2017). In the study, lean supply chain was idealized by the use of flexible supply chain, inbound and outbound structures and a measured production process. Lean supply chain management has encountered applications as an effective platform for enabling reduction of costs and wastages to the minimum level. Numerous institutions show increased budgetary allocations towards procurement of materials and thus critical for these materials to be utilized in an efficient manner to minimize production costs and realize the best results. According to Chitale & Gupta, (2014), this is crucial for institutions recording increased purchase demands because costs and waste tend to accumulate very fast.
Nazaar & Shazad (2013), advanced that being a global leader in Information Technology and systems based on their ground breaking computing ability, Cisco East Africa Systems possess an extensively deep and expansive supply chain spanning across nations globally. The management of the institution recently restructured their supply chain plans with the intention of increasing their market scope and flexibility. Through the adoption of better marketing templates and automated supply chain there was ability to improve on flexibility and market edge. The Pepsi company being a leader in the beverage industry, houses numerous extensive and adored products globally. The institution’s management has superbly undertaken an impressive effort transforming its supply chain ability to deal with sophisticated commodities to track consumption patterns to current richer foods in nutrition compared to the carbonated sodas and processed foods. The company’s new unit in Kenya has created major adjustments like sustainability programs, production planning partnerships, sourcing of plans, limited procurement and setting inventory buffers in order to realize a more flexible and lean supply chain (Nyamasege & Biraori, 2015).

Muchiri (2017) undertook an analysis examining the effect of lean supply chain management activities towards institutional outcomes across government parastatals in the energy Ministry in Kenya. The study employed a descriptive study model in examining the impact of lean supply chain activities towards institutional outcomes with the targeted population size including every parastatal in the Ministry (8). Collection of primary data was achieved through the use of a questionnaire. The responses were analysed and summarized through the use of descriptive statistics tools like percentages, mean and frequencies. From the analysis findings, it was clear that government corporations in the energy industry implement certain lean supply chain management activities which are connected to their scheduled plans and that the lean supply chain activities greatly contribute to outcomes and thus establishes market advantage of the parastatals in this ministry through the concentration on operational success. An analysis conducted by Mwangangi and Achuora (2019) examining the impact of lean supply chain towards the results of public universities in Kenya, employed a descriptive study model with a target population comprising of the workforce cut across the accounting, administration, and procurement departments of public universities. The study was conducted in every public university in Kenya, with the investigator using the census approach. Findings from the analysis showed the existence of a major positive connection among lean supply chain and institutional results. The conclusion therefore is that any improvement on institutional; results of these institutions is based on the integration of lean supply chain programs.

2.2.5 Performance of Medical Supply Firms

According to (Gibson et al., 2010) Institutional results forms the last phase of an institution and carries; the desire of specific goals to be met, the span for realizing these goals as well the success of attaining these goals. Koontz & Donnell, (2003), equally, advances that institutional results entails the capacity of an organization or firm to realize goals like increased profitability, commodity quality, increased market, positive financial indications sustenance during turmoil. Institutional results may be employed in indicating the success of an institution with regards to profit levels, market coverage and commodity quality with an eye to business rivals in the market. As a result, it represents the success of a firm indicated against revenue generated, profit margins, business growth, development and subsequent expansion. It is normal for any type of institution to fight for survival; where survival is realized anytime success is reported. For an assurance of success, it important for the establishment to record positive results. In the end, the results are largely dependent on the leadership plan and institutional construct and is thus viewed a crucial principle in the strategic management area. According to Johnson et al., (2006), institutional
performance entails varied plans in helping the establishment of targets and the monitoring process of the same. This enables possible changes to the plans of realizing the goals in an effective and efficient manner. Business leaders and ownerships are consistently worried about organizational results, which is based on the fact that despite the workforce accomplishing their roles and showing work commitment; the institution may still fail in meeting its desired goals. At times, institutional outcomes are controlled by certain occurrences and better fortunes instead of the contribution of the workforce. Still, for a positive business operation to occur, roles ought to be profiled and met. Thus, it is important for an institution to create plans matching with the capabilities present and ultimately improves the performance of the institution.

2.3 Conceptual Framework

Based on assertions by Mugenda & Mugenda (2006), a conceptual framework refers to a hypothesized framework showcasing the analysis as well as the associations among the dependent variable and the independent variables. It captures the connection among variables in the study and details the connection either diagrammatically or graphically.

**Independent Variables**

<table>
<thead>
<tr>
<th>Information Integration</th>
<th>Value added logistics</th>
<th>Outsourcing</th>
<th>Lean Supply Chain</th>
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<tbody>
<tr>
<td>• Information Flow</td>
<td>• Direct Store Delivery</td>
<td>• Formal Contracts</td>
<td>• Minimal wastes</td>
</tr>
<tr>
<td>• Suppliers System</td>
<td>• Contact packing</td>
<td>• Supplier Visits</td>
<td>• Demand Satisfaction</td>
</tr>
</tbody>
</table>

**Dependent Variable**

<table>
<thead>
<tr>
<th>Organisation Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sales Growth</td>
</tr>
<tr>
<td>• Market Share</td>
</tr>
<tr>
<td>• Sales Growth Rate</td>
</tr>
</tbody>
</table>

**Figure 1 Conceptual Framework**

*Source: Author (2021)*

3.0 Research Methodology

The study adopted a descriptive study design that is ideal because the review is aimed at detailing deductions from the analysis through the observation and description of patterns without influencing them in any way (Garg & Kothari, 2014). A descriptive study design is effective with the review since it allows the space to establish the connection among every independent variable and the dependent variable. The target population was 2529 procurement officers and
representatives of user departments who were respondents to this study. Both the stratified random and simple random sampling techniques were employed in this study. The first stage of sampling was stratified sampling which was for the purpose of ensuring level of representation across the varied participants within the institution. Stratified random sampling technique, was employed during the selection of the sampling size with the help of Yamane’s statistical formula; where the strata was made up of the employee designation. Random sampling technique was employed in selecting participants proportional to the staff number in every group. Table 3.2 below details a template for the selection of participants. Taro Yamane formula was chosen because of its high precision in sample size determination.

The investigator sought a study approval that was acquired from the Post Graduate School of business administration at the University that enabled them get a permit from NACOSTI. After that the researcher went ahead and sought permission from the medical supplies organisations administration before finally embarking on data collection. Collected data was standardized by use of varied control measures to check for consistency and since data entry was the next stage. Coding of questionnaires took place, and every questionnaire was assigned a special identification code awaiting data entry. The investigator scanned the data to identify inconsistency and completeness cases. Analysis of data was done using SPSS (Statistical package for social scientist) version 23. Measures of central tendency were obtained from the mean and standard deviation scores respectively. Linear regression was used to determine the influence of independent variables on dependent variable. Data presentation was done using charts and frequency tables.

4.0 Data Analysis Results

Table 1: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.824a</td>
<td>.679</td>
<td>.675</td>
<td>.41472</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Information Integration, Warehousing, Outsourcing, Lean Supply Chain

b. Dependent Variable: Organization Performance.

Source: Research Data (2021)

Based on table 1, the is a determination by the analysis that R=0.679; meaning that 67.9% of organizational performance of the Kenyan medical supplies entities is controlled by information integration, warehousing, outsourcing, lean supply chain leaving 32.1% untouched. The implication is that to certain degree there exists a solid explanatory ability for the entire regression. Thus, investigators ought to undertake more analyses to determine the other factors (32.1%) influencing organization performance of medical supplies organizations other than (information integration, warehousing, outsourcing and lean supply chain) affecting organization performance of medical supplies organizations, Kenya.
Table 2: Relationship between Independent Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>110.184</td>
<td>4</td>
<td>27.546</td>
<td>160.157</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>52.114</td>
<td>303</td>
<td>.172</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>162.298</td>
<td>307</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. Dependent Variable: Organization Performance  
b. Predictors: (Constant), Information Integration, Warehousing, Outsourcing, Lean Supply Chain

Source: Research Data (2021)

The probability value of p<0.00 translates to the regression relationship being greatly significant in showing the manner information integration, warehousing, outsourcing and lean supply chain influence organization performance of the Kenyan medical supplies entities.

Table 3: Relationship between Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.497</td>
<td>.199</td>
<td>7.520</td>
<td>.000</td>
</tr>
<tr>
<td>Information Integration</td>
<td>.362</td>
<td>.049</td>
<td>.319</td>
<td>7.337</td>
</tr>
<tr>
<td>Warehousing</td>
<td>.334</td>
<td>.054</td>
<td>.356</td>
<td>6.129</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>.232</td>
<td>.044</td>
<td>.283</td>
<td>5.257</td>
</tr>
<tr>
<td>Lean supply chain</td>
<td>-.247</td>
<td>.039</td>
<td>-.216</td>
<td>-6.254</td>
</tr>
</tbody>
</table>

*a. Dependent Variable: Organization Performance  

Source: Research Data (2021)

Certainly, information integration possesses the most positive impact towards organizational performance, and next is warehousing, outsourcing and lean supply chain. Determination of individual significance of the predictor variables testing was by a t-test. Based on the deductions, information integration, warehousing, outsourcing and lean supply chain were revealed to be individually statistically significant related to organization performance p-value<0.05. The findings in the table 4.28 came to a conclusion that considering every aspect (information integration, warehousing, outsourcing and lean supply chain) constant factor=1.497 due to variation. Further, a unit increase in information integration at the same time establishing the coefficient of other independent variables zero leads to a change in organizational performance within the Kenyan medical supplies entities by a factor of .362; a unit change in warehousing at the same time establishing the coefficient of other independent variables zero leads to an increase in organizational performance within the Kenyan medical supplies entities by a factor of .334; a unit increase in outsourcing at the same time establishing the coefficient of other independent variables zero leads to an increase in organizational performance within the Kenyan medical supplies entities by a factor of .232; a unit change in lean supply chain at the same time establishing the coefficient of other independent variables zero leads to a decrease in organizational performance within the Kenyan medical supplies entities by a factor of -.247;
Using the bêta coefficient, the established regression model was as follows: $Y = 1.497 + .362X_1 + .334X_2 + .232X_3 + .247X_4 + \varepsilon$, Where; $Y$ = Organization performance, $1.497$ = Constant term, $X_1$= Information Integration, $X_2$= Warehousing, $X_3$= Outsourcing, $X_4$= Lean supply chain, and $\varepsilon$ = Error term. The findings reveal that information integration, warehousing, outsourcing and lean supply chain were individually statistically significantly related to organization performance $p$-value<0.05. Hence all the hypotheses were rejected.

**Table 4: Correlation Analysis**

<table>
<thead>
<tr>
<th>Organization Performance</th>
<th>Information Integration</th>
<th>Warehousing</th>
<th>Outsourcing</th>
<th>Lean supply chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.685**</td>
<td>.747**</td>
<td>.664**</td>
<td>-.030</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.598</td>
</tr>
<tr>
<td>N</td>
<td>308</td>
<td>308</td>
<td>308</td>
<td>308</td>
</tr>
</tbody>
</table>

**Source: Research Data (2021)**

Based on the deductions on table 4, there is an indication of the existence of a positive correlation among information integration and organizational performance within the Kenyan medical supplies entities at significant 0.05 level, the strength is at 68.5%. Further. The deductions point to the existence of a positive correlation among warehousing and organizational performance within the Kenyan medical supplies entities at significant 0.05 level, the strength is though strong, at 74.7%. still, the deductions point to the existence of a positive correlation among outsourcing and organizational performance within the Kenyan medical supplies entities at significant 0.05 level, the strength is though average, at 66.4%. The deductions reveal the existence of a major positive correlation among lean supply chain at significant 0.05 level, the strength is average at 73.6%.
5.0 Conclusions and Recommendations

5.1 Conclusions

The first objective of this study was to determine the influence of information integration on performance of medical supplies organizations in Kenya. The study established that supply chain information integration influences organization performance to a large extent and therefore study concludes that supply chain information integration is significant determinant in the organization performance. The second objective of this study was to determine the influence of warehousing on performance of medical supplies organizations in Kenya. The study established that warehousing influence organization in medical supplies organizations in Kenya therefore study concludes that warehousing is significant predictor of organization performance in medical supplies organizations in Kenya.

The third objective of this study was to determine the influence of outsourcing on performance of medical supplies organizations in Kenya. The study established that outsourcing influence organization in medical supplies organizations in Kenya therefore study concludes that outsourcing is significant determinant of organization performance in medical supplies organizations in Kenya. The fourth objective of this study was to determine the influence of lean supply chain on performance of medical supplies organizations in Kenya. The study also established that lean supply chain does not influence medical supplies organizations in Kenya. Lean supply chain is an insignificant determinant in the organization performance. The study concludes that there is no statistically significant correlation between lean supply chain and organization performance.

5.2 Recommendations

One of the study’s proposal is for information integration to be enhanced within supply chain activities. Within the medical field there ought to be dissemination of information for purposes of ensuring improved standards and success in supply chain leadership across the field. Still on it, removal of hindrances between entities in supply chain stores across the medical sector and further among institutions is a critical aspect for enhancing integration. The end result will be an improved performance across the organizational performance of supply chain processes in relation to medical supplies entities. The study’s second proposal is the push for the improvement of stock monitoring and the working group ought to be externally guided in relation to this process. Also, there is the desire for additional periods to be given when it comes to activities at. Any institution ought to have proper inventory monitoring interventions established. The effect by stock monitoring as undertaken by an institution ought to adhere to the set regulations and guidelines. There is a recommendation from the analysis for successful distribution planning that enhances institutional results within government parastatals. Thus, institutions ought to have self-assessment schedules along the planning process. It is important to ensure the distribution planning promises delivery on time. Lastly, there is need for institutions to ensure participation during planning is enough.

Another proposal is that the ownership and leadership of medical supplies organizations ought to make sure that their institutions realize best outcomes based on outsourcing, and at the same time evaluating possible threats likely to emerge. With the revelation that activities around outsourcing by medical supplies entities influencing organizational, there is a recommendation that medical supplies institutions ought to go on with outsourcing the services they don’t possess market edge
over rivals in order to consistently improve their outcomes. Lastly, there is a proposal for medical supplies institutions to group supply chain processes to match with the required utilities for ensuring a lean supply chain with the ability of providing the best standards at a reduced cost. Another aspect is for service providers to ensure experienced personnel within supply chain management take part in material standardization interventions. Bodies like KEMSA must evaluate the effect of every supply chain management activity established and the effect of supply chain management.

References


Kivuva, B.M. (2018). The core objective of carrying out this study was to analyse the effects of outsourcing services in the oil marketing firms in Kenya.


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