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Supply Chain Planning and Competitive Advantage of Organisations; a Survey of Parastatals Corporations in Kenya

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Abstract:

The impact of supply chain management on economic growth and investment decision of firms has been studied by several scholars around the world. Supply chain accounts for more than 25% of the total demand in most private sectors and over 35% of public sector's total demand. Despite this, effect of supply chain governance on public organization performance has not been well covered, probably due to their non-profit nature. As a result, this study was intended to determine the effect of supply chain governance among parastatals in Kenya. The objective of the study is to determine the effect of supply chain planning on organization performance. The study used exploratory research design. From a target population of 96 parastatals, a sample size of 77 respondents was arrived at using Taro Yamane formula (1973). Stratified and simple random sampling methods were used to select respondents. Both primary and secondary data was collected and analyzed using multiple regression methods. Significance of regression beta results was assessed at 0.05 level of confidence using F test statistics. The study findings showed that there was significant correlation between supply chain planning and organization performance.

Keywords: *Supply chain planning, supply chain governance, competitive advantage of Organisations, supply chain management*

1. Introduction

Supply Chain Management (SCM), as a global network used to deliver products and services from raw materials to end customers through an engineered flow of information, physical and cash, Lancioni *et al.*, (2000) stressed the need to have coordinative mechanism that would uphold standards. This coordinative mechanism is termed Supply Chain Governance. According to Crisen (2012), he asserts supply chain governance as the way in which supply chains are administered from a central place to achieve responsibility for business continuity, developing a shared sense of value within the organization, safeguarding corporate knowledge and management of human capital.

Supply chain governance has changed the way public sector operates. This is as a result of integration which enhances co-ordination of demand in order to satisfy customers' needs. Carter & Rogers (2008) pointed that Supply Chain Governance not only helps organizations streamline and manage supplier quality and supplier performance, but also enables them to identify, mitigate and manage supplier risks for key procurement and manufacturing processes

With the increased demand for better services in the public sector, there is need to effectively manage the public supply chains. McAdam *et al.*, (2005) stressed that interrelationships between the partners in the supply chain needs to be managed to enhance performance, enhances continuity and shared sense of value within the whole organization. Thus, Supply chain governance seeks to implement a framework of integrating supply chain plans which link to both internal and external customers (OGC, 2005). To sum up, Supply Chain Governance has been seen as a powerful tool in enhancing competitiveness of supply chain in both the public and private sector.

2. Theoretical Review

Although a significant part of governance literature gives special attention to control practices and role description in organizations, other theoretical approaches broaden the understanding of its concept (Rodrigues & Malo 2006). Cornforth (2003) suggests four theoretical perspectives through which the governance concept can be viewed: agency theory, stewardship theory and, transaction costs theory and resource dependence theory.

Agency theory postulates that companies in the supply chain have different interests; thus, governance emerges as a set of practices to guarantee control and coordination of actions in the supply chain. Contracts are a way to provide guarantees to companies in supply

chain and allow conformities on actions performed. Many times, a way to achieve the supply chain's business goals is through the provision of incentives. Power is also a crucial element in the supply chain and is important to guaranteeing control and performance of contractual arrangements in support of the business interests involved. We call the type of governance supported by agency theory contractual governance. With **transaction cost theory**, the organization is seen as a governance structure serving as an instrument to minimize transaction costs. Different forms of organizations are offered that aim to minimize the effects of bounded rationality and safeguard transactions against brokers' opportunism. Transaction costs are influenced and established according to the complexity and codification of each operation.

In **resource dependency theory** organizations rely strongly on the external environment to survive, in particular with other SC business' partners in this context governance is a set of practices to develop a relationship with this environment aiming to attain all resources and necessary information to ensure the organization's survival. Therefore, the characteristics of suppliers with their capacities, qualifications and flexibility take on an important role, once we analyze the SCG. Lastly, **stewardship theory** supposes that different partners in the supply chain may be seen as allies with common interest. In order for this to happen business partners in the supply chain must trust one another, cooperate, be integrated and committed, collaborating to achieve the supply chain's goal. Both resource dependency theory and stewardship theory point to what we call relational governance.

3. Concept of Supply Chain Planning

Planning is, in general, about balancing needs with resources to achieve a shared goal. Planning is often separated hierarchically into strategic, tactical, and operational planning. Both Bryson (2011) and Montana and Charnov (2008) describe strategic planning as the process of identifying where you are now, where you want to be, and the means to getting there. This includes identifying goals for the company and sharing them within all functions. The outcome of the strategic planning gives input to the tactical planning. Tactical planning is the process of outlining activities that have to be done in order to fulfil the goals of the strategic plan (Fleischmann *et al.* 2008). The operational planning finally breaks down the activities and objectives for identifying daily activities that have to be done and assigns individuals to complete them (Montana and Charnov 2008).

Fleischmann *et al.* (2008), and Vollmann *et al.* (2005) suggest the use of long-term, mid-term, and short-term rather than the terms strategic, tactical, and operational. Regardless of terminology used, planning is done with different planning horizons. This also applies for Supply Chain Planning. A supply chain consists of processes and activities where several organisations produce value to the end-customer (Christopher 2011). This means that these organisations in the supply chain must work in a coordinated manner and develop plans considering the whole supply chain. As Christopher (2011) puts it, more focus is put on the competitiveness of the supply chain rather than of single companies. This requires information sharing about demand, supply, and production aspects among the members in the supply chain (Olhager 2013). It also means that it is important to integrate other supply chain members in the planning process as the complexity of the supply chain with several planners might result in sub-optimisation and lack of a holistic perspective (Pibernik and Sucky 2007).

Jonsson and Holmstrom (2016) assert that Supply Chain Planning is an implemented operations planning and control framework, system, process, or method with a supply chain scope. They further pointed out that SCP consists of four parts: sales and operations planning for coordinating supply and demand in the supply chain, network production planning for several plants, planning and control of inventory and replenishment in the supply chain, and information sharing and collaboration. A similar perspective of Supply Chain Planning is the one described by Fleischmann *et al.*, (2008), It include both the production aspects of Supply Chain Planning but also procurement, distribution, and sales.

Furthermore, Gupta and Maranas (2003), supply chain planning is concerned with the coordination and integration of key business activities undertaken by an enterprise, from the procurement of raw materials to the distribution of the final products to the customer. This contains the integrative supply chain perspective but lacks in defining what the key business activities are. They do however stress customer focus, which is in line with Lummus & Vokurka (1998), that SCP should focus on creating value for the end-customer. As being part of SCM (CSCMP 2013), SCP should focus on customer value but also integration. The SCP should thus include means for achieving this integration of supply chain members. In order to integrate the members of the supply chain it is important to share supply and demand information such as forecasts and production programs. Rudberg *et al.* (2002) include demand planning, supply planning, promotion planning, transportation planning, and product development as parts of SCP.

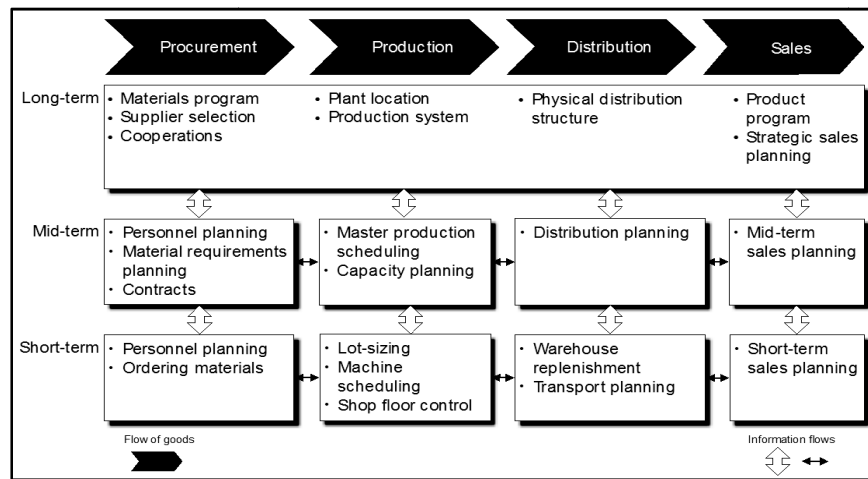


Figure 1: The SCP matrix (Fleischmann et al., 2008).

4. Concept of Competitive Advantage

Competitive advantage is the extent to which companies are able to create a defensible position over its competitors (McGinnis & Vallopra, 1999). In today’s global competition environment, facing the rapid technology progress and high customer expectations, companies find it hard to win the competition only depending one’s own capacity (Su et al., 2008). In this situation, the establishment of the supply chain partnership among companies and the coordination of the partners are highly valued.

Also, many companies struggle in justifying the cost of quality within their supply chain, but many companies fail to see the cost associated with varying quality levels from their suppliers. In order to create a quality product, which is one of the competitive advantages, company must address all aspects of the supply chain, including individual processes and supplier selection (Franca et al., 2010). This is the main role of the supply chain management.

There are some dimensions of supply chain performance based on supply chain processes and management which have direct influence to competitive advantage: resource, output, flexibility, innovativeness and information. So, improving supply chain performance has become one of the critical issues for gaining competitive advantage for companies. Supply chain is a dynamic management tool and continuously improving performance has become a critical issue for most suppliers, manufactures and the related retailers to gain and sustain competitiveness (Cai et al., 2009).

Increasing competitive pressure and the rapid pace of technological change are motivating companies to focus on partnership with suppliers as a means of distributing risks and enhancing business processes, through the development of joint skills and shared interorganisational routines (Anderson & Christensen, 2000; Trent & Monczka, 1999). Companies are enhancing their innovative and competitive ability by focusing on their core competencies and leaving marginal activities to a selected group of competent suppliers (Sheth & Sharma, 1999).

A lot of companies emphasize quality as a means to stay competitive in the marketplace over the long run. They have a reputation of high quality as representing future market share for new customers and maintaining market share for existing customers over their lifetime. Further, improving quality can provide long term financial savings (Franca et al., 2010).

5. Research Methodology

5.1. Research Design

The study used an explanatory research design. According to Cooper and Schindler, (2000) explanatory research focuses on why questions. In answering the ‘why’ questions, the study involved in developing causal explanations how phenomenon Y (Competitive Advantage) is affected by factor X (Supply Chain Planning). This design was chosen because it applied closely to the objective of the study, hence practical in testing the study hypothesis.

5.2. Target Population

The target population of the study was 96 parastatal or state corporations in Kenya. Classified in Table 1

Economic Sector Served	Population
Agriculture	15
Service	19
Industry	30
Banking and Finance	8
Education	24
TOTALS	96

Table 1: State Parastatals in Kenya Classified According to Sector Served

5.3. Sample and Sampling Procedures

From the target population of 96, the sample size computed based on Yamane (1973) sample size formula, as follows;

$$n = \frac{N}{1 + Ne^2}$$

Where: n = Sample size
N = Population size
e = the error of Sampling (0.05)

Hence, a sample size of 77 respondents was arrived at. The study used stratified sampling procedure to select respondents. Respondents for each stratum were computed based on their weight, according Neyman (1934) allocation formula as follows;

$$n_h = \left(\frac{N_h}{N} \right) n$$

$$n_h = \left(\frac{N_h}{N} \right) n$$

Where: n_h - The sample size for stratum h,
n - Total sample size,
 N_h -The population size for stratum h,
N- The total population

Hence, distribution will be as in Table 2.

Economic Sector Served (Stratum)	Population	Sample size $n_h = \left(\frac{N_h}{N} \right) n$
Agriculture	15	12
Service	19	15
Industry	30	24
Banking and Finance	8	6
Education	24	20
TOTALS	96	77

Table 2: Sample Size
Source: Researcher (2017)

Thereafter, respondents from each stratum were selected using simple random sampling and convenience sampling methods.

5.4. Research Instruments and Data Collection Procedures

The researcher used questionnaires as a tool for data collection. The questionnaires contained closed ended questions that solicited respondents' views on supply chain governance effects on organization performance, as weighted on a 5- point Likert scale. Questionnaires were self-administered and picked one week later to allow respondents humble time to fill them.

6. Data Analysis and Presentation

6.1. Demographic Information

Demographic information results were displayed in Table 1 and revealed the position, gender, years of service and level of education of the respondents. Demographic results with regards to work position reveals that 16% of respondent were supply chain managers, 43% assistant managers, 30% supply chain officers and 11% held other positions within supply chain department in state parastatals as shown in Figure 1. This finding reveals that majority of respondents were either assistant supply chain managers or supply chain officers, therefore information collected were reliable and relevance to topic.

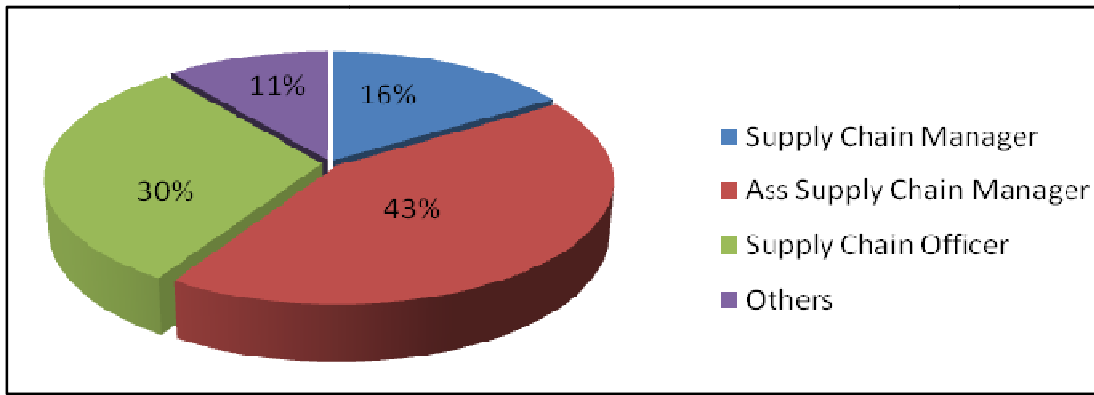


Figure 1: Respondents Work Position
Source: Researcher (2017)

With regard to respondent gender, majorly were male gender accounting for 59% as compared to female counterpart with 41%, showing that majority of supply chain personnel are male and shown in Figure 2.

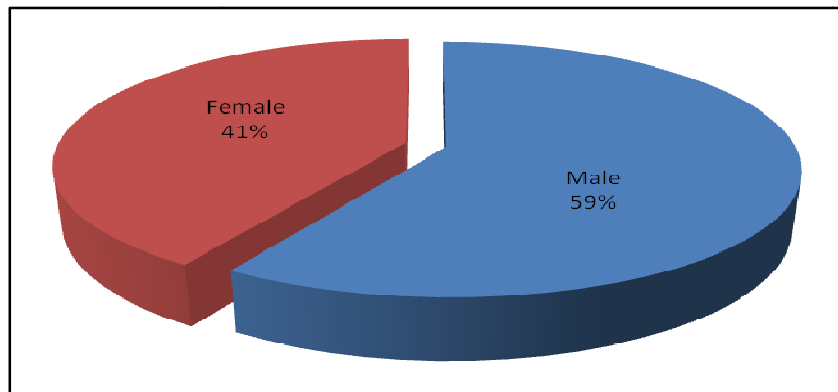


Figure 2: Respondents Gender
Source: Researcher (2017)

Findings on years of service shows that 10% of respondents have worked for less than a year, 26.67% between one to two years, 50% between two to four years, with 6.67% for both 4-6 years and above 5 years each as presented in Figure 3. This finding reveals that majority of respondent have worked for more than two years, thus were skilled and familiar with supply chain operation.

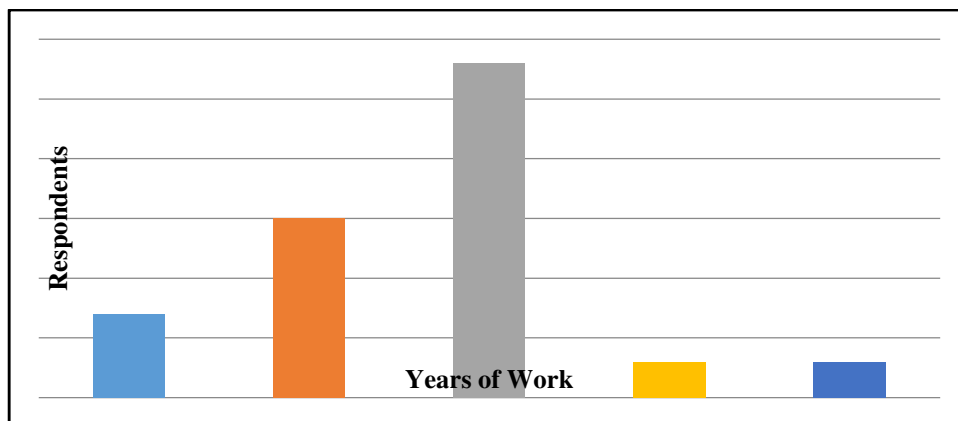


Figure 3: Respondents Years of Service
Source: Researcher (2017)

Last but not least, respondent level of education shows that 16.67% were A level qualified and 83.33% were University graduates as depicted in Figure 4.

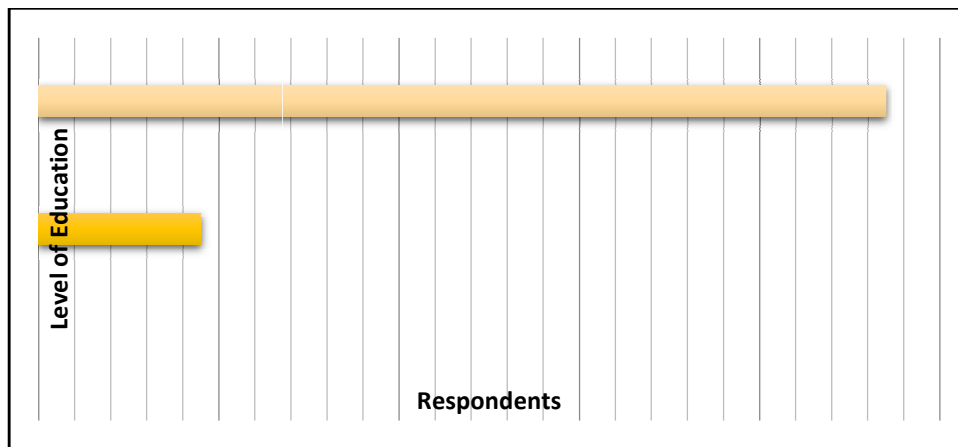


Figure 4: Respondents Level of Education
Source: Researcher (2017)

This also shows that most of responded were learned or supply chain professionals and conversant with their job. Generally, demographic characteristics justify the reliability and validity of data collected.

		Frequency	Percent
Position	Supply Chain Manager	9	16
	Ass Supply Chain Manager	24	43
	Supply Chain Officer	17	30
	Others	6	11
	Total	56	100
Gender	Male	33	60
	Female	23	40
	Total	56	100
Years of service	< 1yrs	7	10
	1-2 yrs.	15	26.66
	2-4 yrs.	28	50
	4-5 yrs.	3	6.67
	>5 yrs.	3	6.67
	Total	56	100
Level of education	O level	0	0
	A level	9	16.67
	University	47	83.33
	Total	56	100

Table 3: Demographic Information

7. Descriptive Results

7.1. Effect of Supply Chain Planning on Competitive Advantage of Organisations

The researcher considered it important to establish information about the effect of supply chain planning on competitive advantage of organisations. This led to formulation of research objective one. Study findings on supply chain planning are illustrated in Table 4 and reveals that majority of the respondents agreed that proper planning help in achieving efficiency in the supply (mean=3.63). In addition, respondents affirmed that supply chain planning ensures optimum level of inventory (mean=3.39) and managing cost of holding inventory (mean=2.23). Finally, respondents hold that supply chain planning helps achieve public confidence (mean=4.07). This summed up the effect of supply chain planning to a mean=3.33, standard deviation 1.314, skewness 0.254, kurtosis 0.088, interpreted supply chain planning relatively affect competitive advantage of organisations.

Supply chain Planning	Mean	Std. Deviation	Skewness	Kurtosis
Supply chain planning help in achieving public confidence	4.07	1.203	0.649	1.321
Planning help in achieving efficiency in the supply	3.63	1.553	0.67	-1.201
Supply chain planning ensures optimum level of inventory	3.39	1.396	0.092	1.405
Planning help in managing cost of holding inventory	2.23	1.103	-0.397	-1.172
Summary of Supply Chain Planning	3.33	1.314	0.254	0.088

Table 4: Supply Chain Planning

8. Findings

8.1. How Supply Chain Planning Affect Parastatals Performance

The findings revealed that supply chain planning was positively related with the organization performance and every unit change in supply chain planning causes 57.7%-unit change in competitive advantage of organisations. Therefore, supply chain managers should heavily invest in supply chain planning to achieve efficiency in organization performance.

8.2. Conclusions

The study affirms that supply chain planning has a positive effect on competitive advantage of organisations. The study findings evidenced that supply chain planning positively impacts on organization performance since it acts as a 'blue print' for the supply chain department to meet other department requirements. The study also provides some assertive evidence that supply chain and disposal procedures seems to play an important role in organization performance. Specifically, organization with a suitable procurement and disposal procedures are highly likely to achieve transparency and accountability.

8.3. Recommendations

From the study findings supply chain planning has a positive effect on competitive advantage, therefore study recommends that supply chain planning should be highly observed in public organizations.

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