

ROLE OF LOGISTIC CAPABILITY ON SUPPLY CHAIN PERFORMANCE OF MANUFACTURING FIRMS IN KENYA: A CASE OF UNILEVER LTD

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Abstract: The primary concern of many organizations is the systematic utilization of logistics competence in order to sustain their lead upon competitors. Similarly, to gain competitive power, organizations use logistics capability strategically and meet customer expectations consistently. Thus, need to establish logistic capabilities among many manufacturing firms. Thus, the general objective of the study was to determine role of logistic capability on supply chain performance of manufacturing firms in Kenya. A case of Unilever Ltd. The study specific objectives were to determine effect process capability, flexibility capability, service reliability capability and information integration capability on supply chain performance of manufacturing firms. The study was informed by Dynamic Capabilities Theory, Transaction Cost Economics Theory and Resource-Based Theory of the Firm. This study adopted an explanatory research design. The study population specifically focused on 189 employees. The study applied stratified and simple random sampling to select 128 staffs to whom questionnaires were provided. The study used questionnaires to collect data from respondents. The reliability of the instruments was established using the Cronbach Alpha Coefficient tests. The study used descriptive and inferential statistics. In descriptive analysis, the study used percentage, frequencies, means and standard deviations. Inferential statistics was done and Pearson correlation coefficient to find out whether there is correlation between the study variables in order to generate the values of the coefficients. The findings revealed that process capability plays a critical role in influencing supply chain performance. For instance, the use of technology which has tremendously reduced the total costs incurred in the firm's operations. Besides, through flexibility capability, firms are able to have a competitive advantage over competitors since the material flow is tailored to meet customer's requirements. Also, technology integration is responsible for the improvement in products and processes in accordance with the changing market demands. Therefore, it is crucial for firms to incorporate a logistic development strategy that addresses the specific requirements of the target markets. Moreover, there is need for continuous innovation and improvement through the provision of different logistic services. In addition, firms need to accumulate resources and competencies which allow them to have a more developed technological capability than their competitors. Finally, firms need to simplify the logistic process and ensure that their logistic services are unique

Keywords: Process capability, Flexibility capability, Information integration capability, Service reliability capability and Supply chain performance.

1. INTRODUCTION

1.1.1 Background of the Study

The performance of supply chains is very often considered by comparison to firm's performance. Today's marketplace is shifting from individual company performance to supply chain performance: the entire chain's ability to meet end-customer needs through product availability and responsive, on-time delivery (Chen & Labadi, 2005). Supply chain

performance crosses both functional lines and company boundaries. Functional groups (engineering/R&D, manufacturing, and sales/marketing) are all instrumental in designing, building, and selling products most efficiently for the supply chain, and traditional company boundaries are changing as companies discover new ways of working together to achieve the ultimate supply chain goal: the ability to fill customer orders faster and more efficiently than the competition (Abdullah & Abdel, 2004).

In today's world, supply chain performance is a key strategic factor for increasing organizational effectiveness and for better realization of organizational goals such as enhanced competitiveness, better customer care and increased profitability (Bosman, 2016). The globalization of markets and outsourcing has made many manufacturing companies logistics capabilities to manage their operations. Most of these companies realize that, in order to evolve an efficient and effective supply chain, SCM needs to be assessed for its performance (Van & Beulens, 2012). Logistics capabilities has been a major component of competitive strategy to enhance organizational productivity and profitability as well as metric measure, however performance pertaining to logistics capabilities and supply chain performance among manufacturing companies has not received adequate attention from researchers or practitioners today (Wegner & Bode, 2016).

1.1.2 Global Perspective of Logistic Capability on Supply Chain Performance

Logistics is one of the most critical and also the most difficult to achieve factors in a successful supply chain. In the new competitive environment, the supply chain has not only to coordinate geographically dispersed manufacturing and marketing activities with a better utilization of logistics resources, but also to turn logistics capabilities based on logistics resources into a key factor in the efficient operation of supply chain, so as to gain and maintain competitive advantage (Esper et al. 2017:). Realizing the importance of logistics capabilities in supply chain operation, scholars in U.S. and other developed countries began to study logistics capabilities in supply chain and their essential factors in the 1990s on the height of advancing competitiveness of supply chain as a whole (Sakchutchawan, 2013).

Globally, an effective Execution of logistics innovation enhances customer value and logistics executives believe that it adds value to a firm's output. Much of this value is generated from the ability to reduce costs and provide delivery solutions according to customer needs accurately (Sakchutchawan, 2013). In China, Zhao et al. (2001) examined the effect of logistics capabilities on the firm's performance. They classified logistics capabilities as customer-focused capabilities and information-focused capabilities. The study indicated that customer-focused capabilities and information-focused capabilities respectively affect a firm performance directly and indirectly.

In Sweden, Sandberg and Abrahamsson (2011) explored the link between logistics capabilities and supply chain performance. Based on case study of two Swedish retail companies; the study concluded that logistics processes and IT systems are valuable, rare and inimitable resources for any firm and can contribute to supply chain performance for the same. Studies have also explored the interface of logistics capabilities and supply chain capabilities. As Mentzer et al. (2004) pointed logistics, as an integral of supply chain management; accordingly logistics capabilities must contribute for developing supply chain capabilities. Based on an extensive literature review of logistics capabilities and supply chain agility; Gligor and Holcomb (2012) argued that logistics capabilities of individual firms must be integrated at the supply chain level for developing supply chain agility. Now in the current investigation, we adopt Mentzer's et al. (2004) classification of logistics capabilities as it is the most popular and acceptable classification in supply chain management studies and it covers the dominant logistics capabilities (Gligor, Holcomb 2012).

Shang and Marlow (2015) suggest that information integration and general integration capabilities comprise logistics capabilities. Compared with related researches abroad, those in China are still at an early stage. Ma Shi-hua and Meng Qingxin (2015) point out that the essential elements of supply chain logistics capabilities include tangible, intangible and synthesized elements. Ma Shi-hua and Shen wen (2015) analyze the influence factors from the viewpoint of logistics resources and systematical structure and discuss some interactive mechanism of the factors. Gui Hua-ming and Ma Shi-hua (2015) analyze the elements influencing logistics capabilities and the outsourcing strategy of enterprises with different capabilities. Yan Xiu-xia, Sun Lin-yan and Wang Kan-chang (2015) propose Logistics capabilities Maturity Model (LCMM). Gong Feng-mei, Ma Shi-hua and Tan yong (2017) set up the model of relationship among logistics information capabilities, distribution capabilities, flexibility capabilities, and supply chain performance. However, there are relatively less empirical studies of manufacturing firms' logistics capabilities, and in particular the measurement is not effectively supported by data in practice.

1.1.3 Local Perspective of Logistic Capability on Supply Chain Performance in Manufacturing firms

The manufacturing sector accounts for approximately 10 percent of Kenya's gross domestic product (Onuonga, Etyang, and Mwabu, 2011). Kenya's manufacturing sector is among the key productive sectors identified for economic growth and development because of its immense potential for alth, employment creation and poverty alleviation. In addition, the sector will continue to provide impetus towards achievement of Millennium Development Goals (MDGs) both in the medium and long term particularly goal one on Eradication of extreme Poverty and hunger and goal eight on Global Partnerships for Development.

Kenya has a large manufacturing sector, serving both the local and international market, which is dominated by subsidiaries of multi-national corporations and contributes approximately 13% of the Gross Domestic Product (Wagwa, 2005) It is the fourth biggest sector after agriculture, transport and communication and wholesale and retail trade, and Kenya is the most developed country in East Africa so far as industries are concerned. According to the Economic Recovery Strategy for Employment and Wealth Creation Report (2015), the manufacturing sector in Kenya is a major contributor to growth, yet it still has a high potential for growth and investment.

The role of the manufacturing sector in Vision 2030 is to create employment and wealth. The manufacturing sector has high, yet untapped, potential to contribute to employment and GDP growth. So far, industrial activities are concentrated in major urban centers, that is, Nairobi, Mombasa, and Kisumu (Magutu et al., 2010). As an important contributor to the overall economic growth, the manufacturing sector deserves an in-depth analysis at industry as well as firm level. After a long period of virtual stagnation, the Kenyan economy went through a phase of brisk growth during the period 2003-2007. During this time, the rate of economic growth rose to as high as 7 percent per annum. During the same period, Total Factor Productivity in manufacturing increased by as much as 20% (World Bank, 2015). This high growth was temporarily halted by the fallout of post-election violence of 2008. The growth of the manufacturing sector followed more or less the same pattern as GDP, which meant that its contribution to GDP plummeted to below 11 per cent of GDP, and there has not been any major takeoff in manufacturing in Kenya since that time (Magutu et al., 2010). Kenya is ranked highest in East Africa, as the country has the most sophisticated manufacturing firms in the region (KAM, 2014). The most common industries in Kenya are those involved in the manufacture of small-scale consumer goods (plastics, batteries, textiles, soap, cigarettes, flour), agricultural products, horticulture, oil refining, aluminum industries, steel, lead, cement and commercial ship repair. However, in order to compete in today's highly competitive business environment, firms in Kenya are forced to focus supply chain and logistics operations as a means of improving performance (Macharia, 2010).

1.2 Statement of the Problem

The primary concern of many organizations is the systematic utilization of logistics competence in order to sustain their lead upon competitors. Similarly, to gain competitive power, organizations use logistics capability strategically and meet customer expectations consistently. Logistics market competition has forced firms to incorporate modern technology into their key offerings to discerning customers who might have or might not have service loyalty. It is important to keep up with customer demand, otherwise the firms risk losing out to competitors with logistics innovation and technology.

In many emerging economies especially in Asia, manufacturing industry had been the economic growth engine and was the major tradable sector in those economies. However Kenya's manufacturing industrial sector enjoyed modest growth rates averaging 4 percent over the last decade (KAM, 2012). In the year 2000 manufacturing sector was the second largest sub sector of the economy after agriculture (RoK, 2007) but in 2010, it was in the fourth place behind agriculture, wholesale and retail trade, transport and communication (World Bank, 2012). As a result, the sector had seen a reduction in its contribution to GDP from 13.6 percent in the early90's to 9.2percent in 2012, (RoK, 2013). According to Kenya National Bureau of Statistics (KNBS, 2013), there had been a decline in growth of manufacturing sector from 3.4 percent in2011 to 3.1 percent in 2012. This then called for new strategies within the manufacturing business with the potential of turning around the industry to be in line with the aspiration ofVision 2030; to achieve an average Gross Domestic Product (GDP) growth rate of 10% per annum (RoK, 2007). Manufacturing firms in Kenya are characterized by elongated or overextended chains retailers (buyers/agents) which, in turn, mean long chains of transactions between chain members and consumers (Amoro, 2011), hence need for logistic capabilities.

Odoyo, Wanza and Donatta (2014) noted that the failure rate of manufacturing business has remained high in Kenya for the last decades. This shows that for firms to improve their logistic capabilities. However, there few studies which have been conducted particularly in emerging economies like Kenya that can provide new knowledge on which logistic capabilities are better for enhancement of supply chain performance in manufacturing firms (Pera & Cheron, 2016). This study fills this gap by exploring the le of logistic capability on supply chain performance of manufacturing firms in Kenya

1.3 General Objective of the study

The general objective of the study was to determine role of logistic capability on supply chain performance of manufacturing firms in Kenya.

1.3.1 Specific Objectives of the study

The study was guided by the following objectives;

- i. To determine the influence of process capability on supply chain performance of manufacturing firms in Kenya
- ii. To assess the effect flexibility capability on supply chain performance of manufacturing firms in Kenya
- iii. To ascertain effect information integration capability on performance of manufacturing firms in Kenya
- iv. To determine effect service reliability capability on supply chain performance of manufacturing firms in Kenya

1.4 Research Questions

The study sought to answer the following research questions

- i. What is the effect of process capability on supply chain performance of manufacturing firms in Kenya?
- ii. Does flexibility capability influence supply chain performance of manufacturing firms in Kenya?
- iii. What is the influence of information integration capability on performance of manufacturing firms in Kenya?
- iv. How service reliability capability affect supply chain performance of manufacturing firms in Kenya?

2. LITERATURE REVIEW

2.2.1 Dynamic Capabilities Theory

Teece et al. (1997) proposed the dynamic capabilities theory as an extension of the resource based view. The theory aims to understand how firms use their dynamic capabilities to create and sustain a firm performance by reacting positively to environmental uncertainties (Teece 2007). Helfat et al., (2007) defined dynamic capability as “the capacity of an organization to purposefully, create, extend, and modify its resource base”. The resource base of an organization includes its physical, human and organizational as-sets (Eisenhardt, Martin 2000; Ambrosini, Bowman 2009). For developing SC Innovation, a firm must align and realign its resources and capabilities in a suitable manner to match its environment. Hence SC innovation can be conceptua-lized as a dynamic capability as it is used for responding to environmental contingencies through developing other supply chain capabilities viz. agility, resilience etc. thereby providing an optimal performance

2.2.2 Transaction Cost Economics Theory

The transaction cost economics theory, developed by Coase (1937) has been used to study outsourcing of firm activities. This theory has received attention by the outsourcing literature since it explains why some activities are retained inside firm boundaries while others are outsourced. Williamson’s concept of transaction costs offers a tentative explanation as to why a firm should choose either to manage R&D administratively within the firm, or by means of transaction in the market place. When the transaction costs for an activity is lower than the costs of production within the firm, it would be preferably outsourced. According to Williamson (1979), activities should be retained within organizational boundaries under conditions of uncertainty, asset specificity and continual reconstructing. There are two types of costs: production and transaction costs. While outsourcing reduces production costs, it also has the potential to increase transaction costs of an activity. Transaction costs are composed of many different costs such as searching and negotiating with partners and

cost of monitoring and enforcing the contract (Agarwal and Ramaswami, 1992; Erramilli and Rao, 1993; Makino and Neupert, 2000).

This theory suggests that only when transaction costs of market exchange are greater than the benefits of externalization then internalized operations are preferred (Brouthers, 2002; Hennart, 1991). Pisano (1990) used this perspective to examine external sourcing of R&D, concluding that small number- bargaining motivated internalization of R&D. This conclusion was supported by Kay (1979) and Teece (1988). Both Teece and Kay argue that R&D is usually done more efficiently in-house for several reasons. For example it is difficult to specify contracts due to high technological, market and general business uncertainty, the protection of proprietary information is difficult, and cumulative learning processes are important to make the lasting strategic advantage of the firm stronger. The transaction cost perspective is however questioned by Chesnais (1996) as it makes collaboration in the production of technological knowledge difficult to explain. Undoubtedly, transaction cost economics (TCE) (Williamson, 1975) has made key contributions to the understanding of make-or-buy decisions, although its limitations have also been highlighted (Barney, 1999; Marshall et al., 2007). Asset specificity has been shown to be a key determinant of make-or-buy decisions (Leiblein, 2003; Walker and Weber, 1984; Williamson, 1981). The lower the asset specificity of an activity, the easier it becomes to write complete contracts and the more likely is outsourcing. Uncertainty has similarly been identified as a determinant of the make-or-buy decision (Williamson, 1981). Firm capabilities and resources are a firm-level indicator of what can and cannot usefully be outsourced (Barney, 1999).

2.2.3 Resource-Based Theory of the Firm

The popularity of the resource based view (RBV) has been widely acknowledged in production and supply chain management (Allred et al. 2011). The RBV argues that a firm can attain sustained firm performance through suitably deploying its resources and capabilities that are often rare, valuable, not substitutable, and difficult to imitate (Barney 1991). Further these resources and capabilities are viewed as bundles of tangible and intangible assets that comprises for e.g. a firm's management skills, its organizational processes and routines, and the information and knowledge it controls (Barney et al. 2011). According to Barney (1991) the resource based view examines the link between a firm's internal characteristics and performance. As the basis for a firm performance, the resource based view considers the application of a bundle of tangible and intangible resources (Penrose, 1959; Wernerfelt, 1984). In order to make to firm performance sustainable, resources are required to be heterogeneous and immobile (Barney, 1991; Peteraf, 1993). Moreover, to create a firm performance, resource need to fulfil the criteria of being valuable, rare, in-imitable and non-substitutable (Barney, 1991). Building on this, the resource based view enable firms to determine their core competences which are also critical for the creation of the latter (Espino-Rodríguez & Padrón-Robaina, 2006).

According to resource-based theory, firm resources and capabilities determine firm performance and sustainable competitive advantage (Penrose 1959; Peteraf 1993). Therefore, firms should develop reverse logistics capabilities in order to reduce costs and maximise their value offer (Olavarrieta and Ellinger 1997; Dowlatshahi 2005; Wong and Karia 2010; Ramírez, Morales, and Jesús 2011). Reverse logistics capabilities represent the internal capabilities and processes that a firm deploys to effectively implement its reverse logistics activities. There are two categories of reverse logistics capabilities: information management capabilities and products (or services) capabilities. Information management capabilities for reverse logistics may utilise existing assets such as information systems and product/market knowledge (Chouinard, D'Amours, and Aït-Kadi 2005). However, demand for return products is often unpredictable and requires specialised knowledge (Ramírez, Morales, and Jesús 2011). Furthermore, the integration of forward and reverse logistics at the information level can be a challenge since demand patterns and data may be codified in different standards. A company that has developed over time, often decades, forward logistics capabilities such as planning and controlling, flexibility, agility, and lean, may find it hard to transfer them into reverse

2.3 Conceptual Framework

The conceptual framework on the relationship between logistic capability and supply chain performance in the context of manufacturing firms in Kenya. This hypothetical relationship is reflected in Figure 2.1 below.

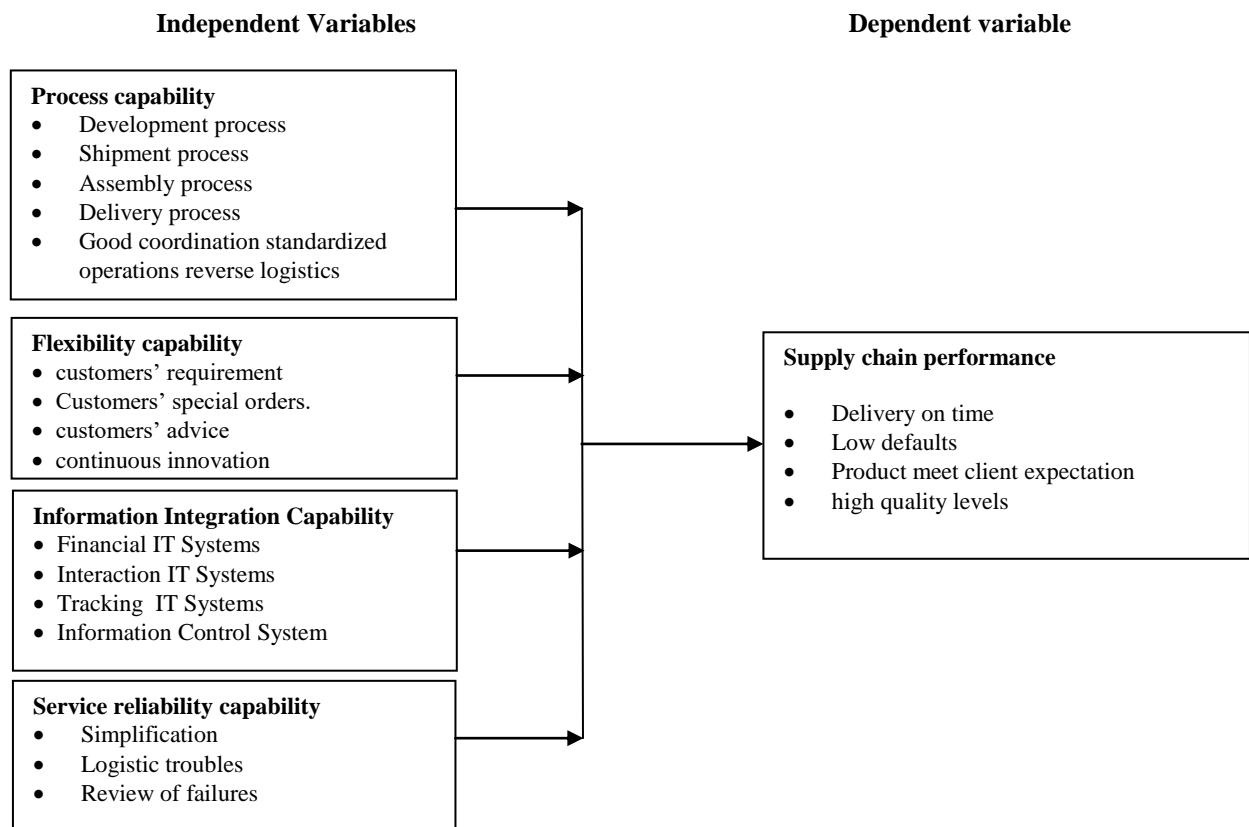


Figure 2.1: Conceptual Framework

2.4 Empirical review

Studies are increasingly looking across the supply chain, beyond their encompassing concept, to establish the link between operations and SCM (Robb et al., 2008; Chen and Kim, 2007; Charles and Omwenga (2018); Oliva and Watson, 2011), with the aim of creating a seamless flow of goods/services and information from suppliers and operations to the customers. However, to the best of the authors' knowledge, the linkages between SCI and operational capability have not yet been addressed explicitly and modeled collectively. Indeed, previous studies have found there is a link between SCM practices and firm performance (Tan, 2002; Min and Mentzer, 2004; Li et al., 2005; Chow et al., 2008; Chong et al., 2011; Cook et al., 2011). For example, Li et al. (2005) suggested an overarching framework to address downstream, internal and upstream sides of the supply chain. They found that organizations achieve better performance when they embrace a higher level of SCM practice. However, this framework is not applicable in the context of small- and medium-sized manufacturers (SMMs), as there are inconsistent results about the direct relationship between SCM practices and business performance in large companies and SMMs. SCM practices in SMMs are more relevant to operational performance and have an indirect relationship between SCM practices and firm performance. As indicated by Koh et al. (2007), the implementation of SCM practices has a significant impact on the operational efficiency of small manufacturers in developing countries. This implies that the actual contribution of SCM practices to firm performance may not be direct; it is probably mediated by a number of competencies and interrelated objectives (Tracey et al., 2004)

Caridi et al. (2010) carried out a multi-case study on the relationship between context variables (such as virtuality and complexity) and conclude that the context has an influence on both supply chain integration and performance as well as on the relationship between these concepts. Gimenez, van der Vaart, and van Donk (2012) found that high levels of supply chain integration are only necessary in environments characterised by high supply complexity. Leuschner, Rogers, and Charvet (2013), in a meta-analysis of 86 peer-reviewed journal articles, found that there is a positive and significant correlation between supply chain integration and firm performance. Charles and Omwenga (2018) in their study on Role of Supplier Management Practices in Optimization of Operational Performance in Telecommunication Service Industry in Kenya: A Case of Safaricom Limited note that growing consensus concerning the strategic importance of integrating suppliers, manufacturers, and customers.

Huo et al. (2014) examined the moderating role of competitive strategy in the relation of supply chain integration on firm performance and found that competitive strategies significantly influence the effectiveness of internal process and product integration but have no significant moderating effect on the relationship between supply chain integration and operational performance. Supply chain integration can be considered as a dynamic capability that firms assimilate over time. Dwyer, Schurr, and Oh (1987) present an evolution process of chain collaboration consisting of four stages: awareness, exploration, expansion, and commitment. Zajac and Olsen (1993) propose a three-stage model of inter-organisational processes: initialization, processing, and reconfiguration. On initialization, partners evaluate exchange alternatives by ex-ante projecting of the ex-post exchange costs. Initialization is a preparation stage with partners designing their supply chain operations. In the processing stage, partners learn about and from each other, manage conflict derived from transaction uncertainty, develop supply chain knowledge, which is an intangible asset with high specificity, and create trust through frequent, successful transactions (Vlachos and Bourlakis 2006; Liu et al. 2013).

A large number of studies have explored shipping service attributes in the shipping industry (Lu 2004, Wong *et al.* 2008). La Londe and Cooper (1989) identified several factors as important customer service factors for selecting and evaluating carriers, namely equipment, consistency, speed of transit time, administration, flexibility, and responsiveness. Lu (2004) investigated logistics services in Taiwanese international distribution centres and identified seven logistics service dimensions: value-added services, support services, distribution services, information and transportation services, cargo-related services, consolidation services, and storage services.

Lu and Yang (2006, 2007) evaluated key logistics service capabilities for international distribution centre operators in Taiwan and identified various key logistics capabilities: customer response, innovation, economic scale, and flexible operation and logistics knowledge ability. Their study results also showed that logistics capabilities had significant positive impacts on international distribution centre operators' competitive advantage and organisational performance.

Yang *et al.* (2009) found logistics service capabilities crucial for liner shipping service to be logistics service reliability capability, logistics value-added capability, relationship building capability, and information integration and flexibility capability. They also found that logistics service capability had a significant positive effect on firm performance.

An appraisal of shipping service attributes from previous studies (La Londe and Cooper 1989, Lai 2004, Lu 2004, Lu and Yang 2006, 2007, Yang *et al.* 2009) and interviews with shipping experts, led to 18 logistics service capability attributes being selected for use in a questionnaire survey based on previous studies.

A large number of studies conducted earlier on shipping and logistics management have argued that capabilities in logistics service and operational dimensions, such as reliability of sailing, flexibility, customer response, service reliability, value-added services, and information systems are drivers of firm performance (Lai 2004, Kim 2006, Lu and Yang 2007, Yang *et al.* 2009).

For example, Innis and La Londe (1994) found that customer service capability positively impacted on customer satisfaction, customer loyalty, and market share. Song and Panayides (2008) found information integration and value-added services had significant positive impacts on firm performance.

In addition, Yang *et al.* (2009) noted that liner shipping firms' logistics service capability can significantly lead to superior customer service performance and financial performance. Hence, based on the resource-based view asserting firms can gain and sustain competitive advantages by developing and deploying valuable capabilities (Barney 1991) and the preceding review of the literature on logistics capabilities, an ocean freight forwarder with the ability to create and deploy resources to satisfy customers' logistics service needs will achieve superior performance.

2.5 Critique of Existing Literature

Review of literature have shown that, for sustainable competitive advantage, the supply chain should not only better deploy logistics assets and coordinate the dispersed manufacturing and marketing activities, but also make related logistics capabilities created by these resources the focus of efficient supply chain operation. However, researches on logistics capabilities have not been well highlighted in academic and practical fields at home and abroad in manufacturing firms.

Over the last few years, several logistics-related studies have demonstrated the effects of logistics capabilities on firm performance (Autry, Griffis, Goldsby, & Bobbitt, 2005; Kim, 2006; Lai, 2004; Lynch, Keller, & Ozment, 2000; Shang &

Marlow, 2005; Tracy, Lim, & Vonderembse, 2005). However, these studies did not show the effect of logistic capabilities on supply chain performance. Morash et al. (1996) found that delivery speed, reliability, responsiveness, and low distribution cost were significantly positively related to firm performance. Zhao et al. (2001) reported customer-focused capabilities to be significantly related to firm performance, whereas information-focused capabilities indirectly affected firms' performance. Morash and Lynch (2002) concluded that good performance firms' customer service capability, such as delivery reliability, customization during logistics, delivery speed, customer service flexibility, disruption avoidance in supply, and responsiveness to customers, are significantly better than those of poor performance firms. However their studies did not incorporate all logistic capabilities in manufacturing firms.

Gong Feng-mei, Ma Shi-hua and Tan yong (2017) set up the model of relationship among logistics information capabilities, distribution capabilities, flexibility capabilities, and supply chain performance. However, there are relatively less empirical studies of manufacturing firms' logistics capabilities, and in particular the measurement is not effectively supported by data in practice.

2.6 Research Gap

The gap remains as to how logistic capabilities can be for it to guarantee the supply chain performance of manufacturing firms. Despite many studies showing effect of logistic capabilities on firm performance, few have been conducted on supply chain performance. This has led many to suggest a gap exists between logistic capabilities and practice as regards the supply chain performance function. In addition, there is no known study which has been done to determine the role of logistic capabilities on supply chain performance among manufacturing firms and more specific in emerging economies like Kenya hence the study fills that gap.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study used a descriptive case study and correlational research design to justify the relationship between the independent variables and dependent variables. The main aim for the choice of these two research designs is to allow the study to determine the strength and direction of a relationship so that later studies can narrow the findings down and, if possible, determine causation experimentally

3.2 Target Population

The study target population specifically focused on 189 procurement and sales employees working from 13 different products in Unilever Kenya as per the 2016 human resource annual report and financial statement of Unilever Kenya

Table 3.1: Target Population

Strata	Target Population
1. Procurement	34
2. Sales	67
3. Store department	88
Total	189

3.3 Sampling Frame

Researchers rarely have direct access to the entire population of interest in social science research; a researcher must rely upon a sampling frame to represent all of the elements of the population of interest (Rahi, 2017). Omair (2014) underscores the importance of selecting a representative sample through making a sampling frame. Generally, the purpose of sampling frames is to provide a means for choosing the particular members of the target population that are to be interviewed in the survey; a list sampling frame is quite simply a frame made up of a list of the target population units (Turner, 2007). This refers to the complete list of all the members of the population that the researcher wishes to draw the study sample from.

3.4 Sample size

Kothari (2009) defines a sample size as a definite plan for obtaining a sample from the sampling frame. The sample size was calculated at 95% confidence level, an alpha level of 0.05 which is margin of error of $\pm 5\%$ and 0.5 as the standard

deviation which shows how much variance the research expects in as responses. From a total population of 402, a sample size, calculated within the stratus with the help of Fluid sample size formula. According to Fluid Survey (2015) a sample size was calculated using the formula below

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

Where:

n = Sample size

N = Population size

e = the error of Sampling

This study allowed the error of sampling on 0.05. Thus, sample size was as follows:

$$= \frac{189}{1 + 189(0.05^2)} = 128 \text{ employees}$$

To determine the number of employees per products, the study applied stratified and simple random sampling proportionate to the cluster size as indicated in Table 3.2 below. The sample size for the study were 128 staffs to whom questionnaires were provided.

Table 3.1: Sample Size

Strata	Target Population	sample size
Procurement	34	23
Sales	67	45
Store department	88	60
Total	189	128

3.5 Sample and sampling technique

A sample refers to a small group of individuals, elements or characters drawn from a larger group (Goldstein, et al., 2015). Sampling ensures that some elements of a population are selected as riding representative of the population. The study adopted stratified sampling technique. According to Shi (2015), stratified random sampling technique was used when the population of interest is homogeneous. It breaks the population into groups of similar characteristics. In this study the target population of interest was composed of various carders namely; top management and other employees.

3.6 Data Collection Instruments

The study used questionnaires to collect data from respondents. The structured (closed-ended) and unstructured (open-ended) questionnaires was used to get uniform responses from respondents. The structured questionnaires were accompanied by a list of all possible alternatives from which respondents selected the suitable answers that described their situation by simply ticking (Mugenda and Mugenda, 2003). The study adopted a drop and pick method where the instruments were dropped and collected after having been completed by the respondents. Frequent follow up was done to overcome low response rate and chances that the respondents forget to fill in the questionnaires. The advantage of using this type of instrument is the ease that it accords the researcher during the analysis. Moreover, questionnaires are convenient to administer when handling a large group of respondents and economical to use in terms of time and money.

3.7 Data collection procedure

The researcher obtained an introduction letter from the school of graduate studies, Jomo Kenyatta University of Agriculture and Technology. The researcher then made a courtesy call to the General Manager of Unilever Kenya Import Company and availed the letter of notification for a permit to collect data from the respondents by distributing questionnaires together with copies of letter of introduction to carry the study. Completed instruments were collected from convenient locations agreed on by both the researcher and the respondents. Data was collected from both primary and secondary sources. Secondary data was obtained from academic journals, textbooks, Google scholar and other useful publications from internet. Primary data was collected using questionnaires.

3.8 Pilot Test

A researcher should do a pilot test of data gathering tools before proceeding with the research. The objective of piloting is to detect any ambiguities in the questions, identifying problems in research methodology and data gathering techniques (Shaw et al., 2016). Pick and drop method was used to administer the questionnaires to 10 respondents who did not take part in the study to evaluate the survey questionnaire for flow of questions, accuracy clarity, readability and understand ability of the research instruments to be used in this study. The reliability of the instruments was established using the Cronbach Alpha Coefficient tests. The researcher also sought voluntary information on improvement of the research instruments from colleagues and supervisors at JKUAT. From their comments and the Cronbach Alpha Coefficient results, the instruments were refined through re-wording to ensure validity and reliability.

3.9 Data Processing and Analysis

According to Vosloo (2014), data analysis is an examination of what has been collected and making deduction and inferences. Before processing the responses, the completed questionnaires were edited for completeness and consistency. Data analysis was done by grouping data from questionnaires into various categories before being coded and analysed. The researcher collected both quantitative and qualitative data which were analysed using both descriptive and inferential statistics. The descriptive statistical tools helped the researcher to describe the data and determine the extent to be used. The Likert scale was used to analyse the frequencies and percentages.

The coded data was then fed into the IBM Statistical Packages for Social Sciences (IBM SPSS) Version 24 using descriptive and inferential statistics. In descriptive analysis, the study used charts, tables and bar graphs to present respondent general information. Inferential statistics was done and Pearson correlation coefficient to find out whether there is correlation between the study variables in order to generate the values of the coefficients in frequencies and percentages. According to (Martin, Kelly, Daniel, Kurosu, & Robert, 2002). Multiple regression models were used to find out the relationship between the independent variables and the dependent variable. Multiple regression was used to determine the strength of association between the predictors (independent) and dependent variables implementation among its dimensions. The test for significance of coefficient of correlation was determined by the use of f-test. The following multiple linear regression was used:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$$

Where:-

Y is dependent variable (firm performance)

X₁ is independent variable (Process capability)

X₂ is independent variable (Flexibility capability)

X₃ is independent variable (Information Integration capability)

X₄ is independent variable (Service reliability capability)

β₀ is a constant

ε is Error term (random variation due to other unmeasured factors).

4. RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the study based on the formulated research questions. The section analyses the variables involved in the study and estimates the conceptual model described in chapter two. In the first two sections, data description and analysis is presented. The model estimation and the analysis of the results are then interpreted.

4.2 Responses Rate

Out of the one hundred and twenty-eight respondents who were sampled and the questionnaires were administered, one hundred and fifteen respondents responded. This gave a response rate of 89.8% percent. According to Kothari (2007), a response rate of 50 percent is acceptable to analyze and publish, 60 percent is good, 70 percent is excellent, and beyond 80 percent is an excellent response rate.

Table 4.1: Response Rate

Response	Number	Percentage
Administered questionnaires	128	100
Returned questionnaires	115	89.8

4.3 Reliability Values for the Research (Pilot Study Results)

As evidenced in Table 4.2, the study variables had alpha coefficients higher than 0.7. This meant that the collected data were reliable as they had a relatively high internal consistency and could be generalized to reflect opinions of all respondents in the target population.

As shown in table 4.2, the Cronbach alpha test showed values ranging from as low as 0.705 to as high as 0.911. These findings were in line with the benchmark suggested by Hair *et al.* (2010) who regard a coefficient of 0.60 to have an average reliability while a coefficient of 0.70 and above indicates that the instrument has a high reliability standard. Although most researchers generally consider an alpha value of 0.70 as the acceptable level of reliability coefficient, lower coefficient is also acceptable (Nunnally, 1978; Sekaran & Bougie, 2010). Therefore, it can be concluded that data collected from the pilot study were reliable and obtained the acceptable level of internal consistency. Therefore, all items were included in the survey instrument.

Table 4.2: Results for Pilot Study (Reliability Analysis)

Reliability Aspects	Cronbach's Alpha
Procurement Policy implementation	0.821
Organizational structure	0.911
Staff competency	0.705
Technology capabilities	0.749
Legal And Regulatory Framework	0.882
Total	0.816

4.4 Demographic Information

This highlights the demographic information of the respondents that includes gender, age education level and job tenure. The findings are presented in Table 4.3. The study sought to assess the demographic information of the respondents. Demographic information aides in the laying of social, economic foundations that might influence the direction of the investigation.

Table 4.3: Demographic Information

		Frequency	Percent
Gender	Male	89	65.4
	Female	47	34.6
	Total	136	100
Age	21-30	4	2.9
	31-40	49	36
	41-50	52	38.2
	50 and above	31	22.8
	Total	136	100
Level of education	O/A Level	43	31.6
	Certificate/Diploma	13	9.6
	Bachelors	61	44.9
	Post Graduate	19	14
Total Population of employees in departments	Total	136	100
	1-10	69	50.7
	11-20	28	20.6
	21-30	24	17.6
	31-40	15	11
	Total	136	100

Table 4.3 above presents the distribution of the gender of respondents. The table indicates that the majority (65.4%) were male while 34.6% were female. This means that manufacturing firms are male dominated.

Most of the respondents (38.2%) were in the age bracket of 41-50 years, 22.8% were over 50 years, 36.8% were in the age bracket of 31-40 years and 2.9% were between 21 to 30 years. It can be said that most of the employees are in the age bracket of 31 to 50 years.

The study sought to establish the respondents' level of education. 31.6% of the respondents had O/A levels, 9.6% of the respondents had certificate/Diploma, 44.9% had a Bachelor's degree while 14% of the respondents had post graduate degree. The well-educated respondents mean that they were well informed and furnished this study with better information which added value.

In terms of the total population of employees in departments, 50.7% of the respondents noted that there are between 1 to 10 employees, 20.6% stated that there are employees in the range of 11 to 20 and 17.6% noted that there are between 21 to 30 employees in the departments. It can be concluded that manufacturing firms creates significant employment.

4.4 Descriptive Statistics

4.4.1 Process capability

Respondents were asked different questions with an aim to determine the influence of process capability on supply chain performance of manufacturing firms in Kenya. Their responses were rated on a 5 points likert-scale in which they either stated strongly disagreed, disagreed, neutral, agreed or strongly agreed. The results are as shown in Table 4.4.

The results from the study revealed that, 30.9% strongly agreed that the firm achieves the minimum of its total costs through effective operation and technology, 37.5% of them agreed, 4.4% strongly disagreed while 27.2% of the respondents were neutral on this item. The mean value for this item was 3.9 and standard deviation was 0.988. The results meant that technology has reduced the total costs incurred by the firms in their operations.

Table 4.4: Process capability

		SD	D	N	A	SA	Mean	Std. Deviation
Achieving the minimum of its total costs through effective operation and technology or scale economy.	%	4.4	0	27.2	37.5	30.9	3.9	0.988
Developing its logistics development strategy according to target markets and the firm's conditions.	%	0	15.4	52.2	21.3	11	2.28	0.858
Simplifying the logistics processes related to manufacturing, shipment, assembly and delivery.	%		18.4	39.7	32.4	9.6	3.33	0.887
Providing standardized operations for key processes.	%	0.7	39	22.1	28.7	9.6	3.07	1.044
Establishing good coordination between logistics department and other ones.	%	0	11.8	17.6	50.7	19.9	3.79	0.898
Dealing with affairs related to reverse logistics	%	0	16.2	22.8	41.9	19.1	3.64	0.971
process capability							3.44	0.490

Also, the study found that 15% of the respondents strongly agreed that they develop their logistic development strategy according to target markets and the firm's conditions, 21.3% of them agreed, 15.4% disagreed while 52.2% of the respondents were neutral. These results summed up to a mean of 2.28 and standard deviation of 0.853. It was therefore concluded that there are gaps in terms of the firm developing its logistic development strategy according to target markets and the firm's conditions.

Moreover, the study sought to find out if there is simplification of the logistics processes related to manufacturing, shipment, assembly and delivery. The findings indicated that 9.6% strongly agreed, 32.4% agreed, 18.4% disagreed and 39.7% were uncertain concerning this question. The question had a mean of 3.33 and standard deviation of 0.887.

The research further sought to find out if there is provision of standardized operations for key processes. The results indicated that 9.6% strongly agreed that there is provision of standardized operations for key processes, 28.7% agreed, 39% disagreed while 22.1% of them were neutral. These results summed up to a mean of 3.07 and standard deviation of 1.044, meaning that there is limited provision of standardized operations for key processes. Besides, the study probed the respondents whether there is establishment of good coordination between the logistics department and the other departments. The results revealed that 19.9% of the respondents strongly agreed, 50.7% of them agreed, 11.8% disagreed while 17.6% strongly disagreed. These statistics summed up to a mean of 3.79 and standard deviation of 0.898. It can therefore be concluded that there is good communication between the logistics department and the other departments. Finally, 19.1% of the respondents strongly agreed that they deal with affairs related to reverse logistics, 41.9% agreed, 16.2% disagreed and 22.8% of them were neutral. The item realized a mean of 3.64 and standard deviation of 0.971, revealing that the firm deals with matters related to reverse logistics.

The results on process capability summed up to a mean of 3.44 and standard deviation of 0.490 implying that gaps exist regarding process capability especially with aspects relating to the simplification of logistic processes, provision of standardized processes and the existence of logistics development strategy. Despite this, the findings are in line with that of Wu et al., (2010) which established that process capability makes it possible for firms to realign their operations in terms of either investing or divesting to catch up with the changes in the external environment. The findings coincided with Wu et al., (2010) process capability continue to play critical roles in influencing a firm's ability to compete in the market. Similarly, the results are supported by Eisenhardt and Martin (2000) suggestion that product development should be performed in cross-functional teams that bring together different sources of expertise.

4.4.2 Flexibility Capability

The respondents were probed on various indicators of flexibility capability. Their responses were rated on a 5 points likert-scale in which they either stated strongly disagreed, disagreed, neutral, agreed or strongly agreed. The results were highlighted in table 4.5.

Table 4.5: Flexibility Capability

		SD	D	N	A	SA	Mean	Std. Deviation
Accomplishing the logistics operations according to customers' requirement more quickly than its competitors.	%	4.4	0	27.2	37.5	30.9	3.90	0.99
Making special logistics plans according to customers' special orders.	%	0	19.1	28.7	42.6	9.6	3.43	0.91
Adjusting its logistics processes according to its employees' and customers' advice.	%	0	19.9	36.8	25.7	17.6	3.41	1.00
Responding to the urgent needs of key customers.	%	4.4	6.6	14.7	50.7	23.5	3.82	1.01
Improving its logistics capabilities through supply chain coordination.	%	1.5	8.1	16.9	40.4	33.1	3.96	0.98
Providing different logistics service from its competitors' through continuous innovation and improvement	%	74.3	25.7	0	0	0	1.26	0.44
flexibility capability							3.71	0.60

The respondents were asked whether the firm accomplishes the logistic operations according to customers' requirements more quickly than their competitors. The findings were such that 30.9% strongly agreed, 37.5% agreed, 4.4% strongly disagreed and 27.2% of them were neutral. The item realized a mean of 3.90 and standard deviation of 0.99 an indication that manufacturing firms does its logistic operations in line with customers' requirements more quickly than its competitors.

To find out if special logistics plans are made according to customers' special orders, the respondents were asked to comment on the same. From the findings, 9.6% of the respondents strongly agreed that special logistics plans are made

according to customers' special orders, 42.6% of them agreed, 19.1% disagreed while 28.7% of the respondents were neutral. The mean value of 3.43 was a confirmation that the firm is yet to accomplish special logistic plans according to special orders made by customers.

As well, the respondents were asked whether logistic processes have been adjusted according to their employees and customers' advice. The findings were such that 17.6% of them strongly agreed, 25.7% agreed, 19.9% disagreed and 36.8% of the respondents were neutral. The item realized a mean of 3.41 and standard deviation of 1.00, implying that not all of the logistic processes have been adjusted according to the advice given by employees and customers.

Besides, the study enquired if the urgent needs of key customers are responded to. The findings indicated that 23.5% of the respondents strongly agreed, 50.7% of them agreed, 6.6% of them disagreed while 14.7% of the respondents were neutral. The results summed up to a mean of 3.82 and standard deviation of 1.01 implying that the urgent needs of key customers are catered for.

The study further sought to ascertain whether there are improved logistics capabilities through supply chain coordination. The results on this item revealed that 33.1% of the respondents strongly agreed, 40.4% of them agreed, 1.5% strongly disagreed, 8.1% disagreed while 16.9% of the respondents were neutral. This summed up to a mean of 3.96 and standard deviation of 0.98. The results indicate that the supply chain coordination has led to an improvement in logistic capabilities.

Finally, 74.3% of the respondents strongly disagreed that there is provision of different logistic service from their competitors through continuous innovation and improvement. The results conform with the aggregate mean of 1.26 and a standard deviation of 0.44. Overall, the findings on flexibility capability had a mean of 3.71 and a standard deviation of 0.60. The results suggest that most of the respondents agreed that flexibility capability is present in the firm. Consistent with the results, Vickery et al., (1999) found out that flexibility in supply chain represents a potential source to improve efficiency in the company as well as supply chain performance. The results also agree Alvarez Gil, (1994) that flexibility can improve the company's competitiveness, particularly for the decision-making process of implementing technologies. However, contrary to flexibility in manufacturing systems, which has been widely researched, Barad and Sapir, (2003) supply chain flexibility has been conspicuous by its absence in manufacturing firms.

4.4.3 Technological Integration Capability

The respondents were probed on various indicators of technological integration capability. Their responses were rated on a 5 points likert-scale in which they either stated strongly disagreed, disagreed, neutral, agreed or strongly agreed. The results were shown in table 4.6.

Table 4.6: Technological Integration Capability

		SD	D	N	A	SA	Mean	Std. Deviation
Collecting and process related logistics information.	Freq.	0	2	47	45	42	3.93	0.85
	%	0	1.5	34.6	33.1	30.9		
Sharing related logistics information between departments.	Freq.	0	16	51	44	25	3.57	0.92
	%	0	11.8	37.5	32.4	18.4		
Upgrading related logistics information and assure the stability of information system.	Freq.	0	0	13	66	57	4.32	0.64
	%	0	0	9.6	48.5	41.9		
Modern information control system	Freq.	0	2	49	38	47	3.96	0.88
	%	0	1.5	36	27.9	34.6		
Customer interaction IT systems	Freq.	5	27	40	45	19	3.34	1.06
	%	3.7	19.9	29.4	33.1	14		
Purchasing/ Financial IT systems	Freq.	0	7	41	42	46	3.93	0.92
	%	0	5.1	30.1	30.9	33.8		
IT							3.75	0.34

The study sought to find out if there is collecting and process related logistics information. The respondents were thus asked to respond accordingly. 30.9% strongly agreed, 33.1% agreed, 1.5% disagreed while 34.6% of them disagreed. The item realized a mean of 3.93 and standard deviation of 0.85, revealing that there is collecting and process related logistics information.

Regarding whether or not logistics information is shared between departments, 18.4% of the respondents strongly agreed, 32.4% of them agreed, 11.8% disagreed while 37.5% of the respondents were neutral. These results summed up to a mean of 3.57 and standard deviation of 0.92, meaning that related logistics information is shared between departments.

The respondents were also asked to state whether there is upgrade of related logistics information and assurance of the stability of information system. The results showed that 41.9% of the respondents strongly agreed, 48.5% of the respondents agreed though 9.6% of the respondents were neutral on this item. The results summed up to a mean of 4.32 and a standard deviation of 0.64, implying that there is upgrade of related logistics information and assurance of the stability of information system.

Furthermore, 34.6% of the respondents strongly agreed that there is modern information control system, 27.9% agreed, 1.5% disagreed while 36% were not sure. The results conform with the aggregate mean of 3.96 and standard deviation of 0.88.

Besides, 14% of the respondents strongly agreed that there are customer interaction IT systems, 33.1% agreed, 19.9% disagreed while 29.4% were not sure if customer interaction IT systems are existent. Overall, it is not clear if the firm has customer interaction IT systems. The results are supported by a mean of 3.34 and a standard deviation of 1.06.

Finally, 33.8% of the respondents affirmed that there are purchasing/financial IT systems, 30.9% agreed while 30.1% were neutral. Evidently, the firm has purchasing/financial systems as confirmed by a mean of 3.93 and a standard deviation of 0.92.

In a nutshell, the findings on technological integration capability had an aggregate mean of 3.75 and standard deviation of 0.34 implying that the respondents were agreeable on most items on technological integration capability. The results corroborate that of Song and Panayides (2008) which found that information integration and value-added services had significant positive impacts on firm performance.

4.4.4 Service reliability

Respondents were asked different questions with an aim to determine effect service reliability capability on supply chain performance of manufacturing firms in Kenya. Their responses were rated on a 5 points likert-scale in which they either stated strongly disagreed, disagreed, neutral, agreed or strongly agreed. The results are as shown in Table 4.7.

Table 4.7: Service reliability

		SD	D	N	A	SA	Mean	Std. Deviation
Review of failures due to the client loss.	%	2.2	24.3	8.1	30.1	35.3	3.72	1.24
Clients are the most important factor to the company.	%	2.2	9.6	4.4	59.6	24.3	3.94	0.93
Search of prior solutions for logistic troubles.	%	2.9	4.4	15.4	40.4	36.8	4.04	0.98
Reverse logistics operations are developed.	%		11	28.7	27.2	33.1	3.82	1.02
Logistic services differentiate themselves from the competitors.	%	1.5	4.4	15.4	47.8	30.9	4.02	0.88
Creative solutions for specific situations and for clients.	%	14.7	19.1	19.9	30.9	15.4	3.13	1.30
Simplification of the general logistic process.	%	0.7	7.4	24.3	37.5	30.1	3.89	0.95
Service reliability							3.68	0.70

The study sought to establish if there is review of failures due to client loss. Results indicated that 35.3% of the respondents strongly agreed, 30.1% of them agreed, 24.3% disagreed, 2.2% strongly disagreed while 8.1% of the respondents were neutral. The results summed up to a mean of 3.72 and standard deviation of 1.24, indicating that there is review of failures due to client loss.

To find out if clients are the most important factor to the company, the respondents were asked to respond accordingly. The findings revealed that 24.3% of the respondents strongly agreed that clients are the most important factor to the company, 59.6% agreed, 9.6% disagreed while 4.4% were not sure. The item realized a mean of 3.94 and a standard deviation of 0.93 a clear indication that clients are an important asset to the company.

Moreover, 36.8% of the respondents affirmed that there is search of prior solutions for logistic troubles, 40.4% agreed on the same, 4.4% disagreed while 15.4% were not sure if the firm searches for prior solutions for logistic troubles. The mean for the item was 4.04 and the standard deviation 0.98 implying that the firm actively engages in finding solutions to logistic troubles before they even occur.

Besides, the results showed that 33.1% of the respondents strongly agreed that reverse logistic operations are developed, 27.2% of the respondents agreed, 15% of them disagreed while 28.7% of the respondents were neutral on this item. The aggregate mean of 3.82 and standard deviation of 1.02 confirms that reverse logistic operations are developed.

To establish if logistic services differentiate themselves from the competitors, the respondents were asked to respond accordingly. In total, 30.9% of the respondents strongly agreed, 47.8% of them agreed, 4.4% disagreed and 15.4% of the respondents were neutral. The item realized a 4.02 and standard deviation of 0.88 implying that logistic services differentiate themselves from the competitors.

In addition, 15.4% of the respondents strongly agreed that there are creative solutions for specific situations and for clients, 30.9% agreed, 19.1% disagreed though 19.9% were undecided. The results suggest that there is doubt if the firm has creative solutions for specific situations and for clients. This is corroborated by a mean of 3.13 and a standard deviation of 1.30.

Finally, 30.1% of the respondents strongly agreed that there is simplification of the general logistic process, 37.5% agreed, 7.4% disagreed whereas 24.3% were neutral. Overall, the item had a mean of 3.89 and standard deviation of 0.95 implying there is simplification of the general logistic process.

In general, the results on service reliability had a mean of 3.68 and a standard deviation of 0.70. The results are in tally with that of Yang et al. (2009) which noted that logistics service capability can significantly lead to superior customer service performance and financial performance. As well, logistics service capabilities such as electronic data interchange (EDI) linkage, cargo tracing and customer response were found to be drivers for superior performance (Murphy and Poist 2000, Lai 2004). Similarly, earlier studies also indicated that customer service capability positively impacted on customer satisfaction, customer loyalty and market share (Innis and La Londe, 1994).

4.4.5 Supply chain performance

The respondents were probed on various indicators of supply chain performance. Their responses were rated on a 5 points likert-scale in which they either stated strongly disagreed, disagreed, neutral, agreed or strongly agreed. The results were illustrated in table 4.8.

Table 4.8: Supply chain performance

		SD	D	N	A	SA	Mean	Std. Deviation
The ability to customize product to meet specific customer demand	%	0	5.1	22.1	55.1	17.6	3.85	0.77
The firm has customer responsiveness flexibility	%	0	3.7	33.1	39	24.3	3.84	0.84
The firm has low percentage of defects	%	4.4	2.2	18.4	50.7	24.3	3.88	0.95
The firm has high percentage of finished goods in transit	%	1.5	8.8	27.9	37.5	24.3	3.74	0.97
There is efficiency of purchase order cycle time	%	3.7	16.2	31.6	32.4	16.2	3.41	1.06
SCP							3.69	0.66

When asked whether they possess the ability to customize products to meet specific customer demand, 17.6% of them strongly agreed, 55.1% agreed, 5.1% disagreed and 22.1% were neutral. The mean for the item was 3.85 and the standard deviation 0.77 an indication that products are customized to meet clients' specific needs.

With respect to whether the firm has customer responsiveness flexibility, 24.3% of the respondents strongly agreed that the firm has customer responsiveness flexibility, 39% agreed, 3.7% disagreed though 33.1% were neutral. The item realized a mean of 3.84 and a standard deviation of 0.84. Furthermore, 50.7% of the respondents agreed that the firm has low percentage of defects, 24.3% strongly agreed, 2.2% disagreed while 18.4% were undecided. There are therefore low percentage of defects as confirmed by a mean of 3.88 and a standard deviation of 0.95.

Besides, the results showed that 24.3% of the respondents strongly agreed that the firm has high percentage of finished goods in transit, 37.5% of the respondents agreed, 8.8% of them disagreed while 27.9% of the respondents were neutral on this item. The cumulative mean of 3.74 and standard deviation of 0.97 confirmed that the firm has high percentage of finished goods in transit. Finally, 16.2% of the respondents strongly agreed that there is efficiency of purchase order cycle time, 32.4% agreed, 16.2% disagreed while 31.6% were neutral. The item realized a mean of 3.41 and a standard deviation of 1.06 implying that the firm is yet to achieve efficiency of purchase order cycle time.

Supply chain performance summed up to a mean of 3.69 and a standard deviation of 0.66. Specifically, there is ability to customize products to meet clients' specifications. Besides, the firm has customer responsiveness flexibility as well as low percentage of defects. In line with the results, Croon & Johnson (2003) confirmed that supply chain performance is associated with cost efficiency, process conformance and internal satisfaction. The results also conform with that of Croom, (2003) which indicated that supply chain activities comprise of planning, sourcing, making/assembling and delivering goods or services to customers.

4.5 Correlation

Table 4.9 illustrates the Pearson correlation results of supply chain performance and process capability, flexibility capability, technological integration capability and service reliability.

Table 4.9: Correlation

		SCP	process capability	flexibility capability	IT	service reliability
SCP	R	1				
	P value	1				
Process Capability	R	.521**	1			
	P value	0.000				
Flexibility Capability	R	.412**	0.131	1		
	P value	0.000	0.127			
It	R	.397**	.499**	0.015	1	
	P value	0.000	0.000	0.864		
Service Reliability	R	.529**	.216*	.334**	0.165	1
	P value	0.000	0.011	0	0.054	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The findings revealed that process capability was positively and significantly correlated with supply chain performance ($r = 0.521$, $p < 0.01$). Further, flexibility capability was positively and significantly correlated with supply chain performance ($r = 0.412$, $p < 0.01$). Similarly, technological integration capability was positively correlated with supply chain performance ($r = 0.397$, $p < 0.01$) and service reliability was indicated to positively correlate with supply chain performance ($r = 0.529$, $p < 0.01$). These findings imply that process capability, flexibility capability, technological integration capability and service reliability are expected to influence supply chain performance.

4.5.1 Model summary

Table 4.10 illustrates the model summary of multiple regression model.

Table 4.10 Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.725a	0.526	0.511	0.4646

a Predictors: (Constant), service reliability , IT, flexibility capability, process capability

The results in table 4.10 showed that all the four predictors (process capability, flexibility capability, technological integration capability and service reliability) explained 52.6 percent variation of supply chain performance (R squared=0.526).

4.6 ANOVA Model

The research findings in Table 4.11 illustrates the results on the ANOVA model.

Table 4.11 ANOVA Model

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	31.327	4	7.832	36.283	.000b
Residual	28.277	131	0.216		
Total	59.604	135			

a Dependent Variable: scp

b Predictors: (Constant), service reliability, IT, flexibility capability, process capability

From the results, the above-discussed coefficient of determination was significant as evidenced in F ratio of 36.283 with p value 0.000 < 0.05 (level of significance). Therefore, the model was fit to predict supply chain performance using process capability, flexibility capability, technological integration capability and service reliability.

4.7 Coefficients of Estimate

The study sought to establish the significance levels of relationship between the study variables. Table 4.12 highlights the results.

Table 4.12: Coefficients of Estimate

	Unstandardized Coefficients			Standardized Coefficients	
	B	Std. Error	Beta	t	Sig.
(Constant)	-1.354	0.509		-2.662	0.009
Process capability	0.444	0.096	0.327	4.633	0
Flexibility capability	0.281	0.072	0.251	3.915	0
IT	0.337	0.136	0.173	2.477	0.015
Service reliability capability	0.329	0.062	0.345	5.292	0
a Dependent Variable: SCP					

Research findings from Table 4.12 showed that process capability had coefficients of estimate which was significant, basing on $\beta_1 = 0.327$ (p-value = 0.009 which is less than $\alpha = 0.05$). Therefore, an increase in process capability by one-unit results to an increase in supply chain performance by 0.327 units. Furthermore, the effect of process capability was reiterated by the t-test value = 4.633, which implied that the standard error associated with the parameter is more than the effect of the parameter.

From Table 4.12, flexibility capability had coefficients that was significant, basing on $\beta_2 = 0.251$ (p-value = 0.000 which is less than $\alpha = 0.05$). Therefore, for each unit increase in flexibility capability, there is up to 0.251-units increase in supply chain performance. Moreover, the effect of flexibility capability was tested by the t-test value of 3.915 which implied that the effect of flexibility capability surpasses that of the error.

Furthermore, the findings showed that technological integration capability had coefficients of estimate which was significant, basing on $\beta_3 = 0.173$ (p-value = 0.015 which is less than $\alpha = 0.05$). This suggests that there is up to 0.173-unit increase in supply chain performance for each unit increase in technological integration capability. The effect of technological integration capability was twice the effect attributed to the error, which was indicated by the t-test value = 2.477.

Finally, service reliability capability had coefficients of estimate which was significant, basing on $\beta_4 = 0.345$ (p-value = 0.00 which is less than $\alpha = 0.05$). This suggests that there is up to 0.345-unit increase in supply chain performance for each unit increase in service reliability capability. The effect of service reliability capability was 5 times the effect attributed to the error, as indicated by the t-test value = 5.292.

From the study, overall model is computed as

$$Y = -1.354 + 0.444X_1 + 0.281X_2 + 0.337X_3 + 0.329X_4 + \epsilon$$

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The overall objective of this study was to determine role of logistic capability on supply chain performance of manufacturing firms in Kenya. In particular the study sought to determine the influence of process capability, flexibility capability, information integration capability and service reliability capability on supply chain performance of manufacturing firms in Kenya.

5.1.1 Process capability

Basing on the findings in chapter four, the study established that technology has reduced the total costs incurred by the firms in their operations. Also, there is good communication between the logistics department and the other departments. Furthermore, the firm deals with matters related to reverse logistics. However, there are gaps in terms of the firm developing its logistic development strategy according to target markets and the firm's conditions. It is also undefined whether there is simplification of the logistics processes related to manufacturing, shipment, assembly and delivery. Finally, there is limited provision of standardized operations for key processes.

5.1.2 Flexibility Capability

Regarding flexibility capability, the study established that Uniliver Kenya does its logistic operations in line with customers' requirements more quickly than its competitors. Further, the urgent needs of key customers are catered for. As well, supply chain coordination has led to an improvement in logistic capabilities. However, the firm is yet to accomplish special logistic plans according to special orders made by customers. Similarly, not all of the logistic processes have been adjusted according to the advice given by employees and customers. In addition, there is no provision of different logistic service from their competitors through continuous innovation and improvement.

5.1.3 Technological Integration Capability

The results on technological integration capability indicated that there is collecting and process related logistics information. Also, related logistics information is shared between departments. Moreover, there is upgrade of related logistics information and assurance of the stability of information system. As well, there is modern information control system and a purchasing/financial system. However, it is not clear if the firm has customer interaction IT systems.

5.1.4 Service reliability

With respect to service reliability, the study found out that there is review of failures due to client loss. This is because clients are an important asset to the company. Also, the firm actively engages in finding solutions to logistic troubles before they even occur. In addition, reverse logistic operations are developed. As well, there is simplification of the general logistic process and differentiation of the logistic services from that of competitors. However, it is unclear if there are creative solutions for specific situations and for clients.

5.2 Conclusion

In conclusion, process capability plays a critical role in influencing supply chain performance. Through process capability, the firm has been able to incorporate the use of technology which has tremendously reduced the total costs

incurred in the firm's operations. Besides, the interconnectedness between departments has been deepened meaning that there is no information asymmetry present between the logistics department and the other departments. Despite the good communication, the firm is yet to reconfigure its logistic development strategy to be in line with that of the target such that customers' specific needs are looked into in the production process. Such gaps in process capability need to be addressed to further increase supply chain performance.

Also, flexibility capability has a positive and significant effect on supply chain performance. Through flexibility capability, firms are able to have a competitive advantage over competitors since the material flow is tailored to meet customer's requirements in a more efficient manner. In fact, the urgent needs of key customers are given urgent attention. As well, the logistic capabilities are improved due to supply coordination. However, the firm is yet to operate at optimal level in terms of flexibility capability since the logistic processes need to be tailored to according to the advice given by both employees and customers.

Besides, technological integration capability enables firms to differentiate themselves from their competitors thereby shortening the gaps with other leading companies in the same industry. This is possible with process innovation and the introduction of superior products. By and large, technology integration is responsible for the improvement in products and processes in accordance with the changing market demands.

Finally, service reliability significantly influences supply chain performance. With clients as the central focus, the firm engages in simplification of the logistic process and differentiation of its logistic services from that of competitors. Prior arrangements are made by the firm to counter foreseeable logistic troubles though the firm is yet to capitalize on creative solutions.

5.3 Recommendations

Clearly, process capability is key in enhancing supply chain performance. As such, it is crucial to incorporate a logistic development strategy that addresses the specific requirements of the target markets and the firm's conditions. Besides, the logistics processes related manufacturing, shipment, assembly and delivery need to be simplified as much as possible for ease of doing business. In addition, the logistic department which plays a central focus in supply chain needs to have good communication with other departments to ensure that the processes are in line with the business goals.

Furthermore, flexibility capability is instrumental in enhancing supply chain performance. In light of this, it is important that firms ensure their logistic operations address customer requirements more efficiently than that of competitors. Specifically, customers need to be at forefront of logistic operations. Moreover, it is necessary for Uniliver Kenya to have continuous innovation and improvement through the provision of different logistic services.

Since technology integration capability results in improved supply chain performance, firms need to accumulate resources and competencies which allow them to have a more developed technological capability than their competitors. In that sense, there should be upgrade of related logistics information and assurance of the stability of information system. In addition. It is important that the firm has a modern information control system and a purchasing/financial system.

Finally, to elicit further improvement in supply chain performance, firms need to simplify the logistic process and ensure that their logistic services are unique. Also, to avoid client loss, the firm needs to engage in finding solutions to logistic troubles before they even occur. Moreover, emphasis needs to be on the development of creative solutions for specific situations and for clients.

5.4 Areas for Further Studies

Future studies may be conducted on the influence of logistic capability on supply chain performance but under different social, economic and political conditions. In addition, the study focused on four logistic capabilities which are process capability, flexibility capability, technological capability and service capability. Thus, empirical work that actually demonstrates the whole of logistic capabilities is beyond the scope of the four capabilities identified in the study. Therefore, similar study can be conducted using different capabilities to influence supply chain performance of manufacturing entities. Finally, further research can be conducted on the influence of logistics capabilities but in different sectors other than manufacturing such transport and logistics.

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