MARKET COMPLEXITY, EARLY SUPPLIER INVOLVEMENT, ORGANISATIONAL LEARNING AND STOCK OBSOLESCENCE IN THE TELECOMMUNICATION INDUSTRY

BY

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A DISSERTATION SUBMITTED TO MAKERERE UNIVERSITY BUSINESS SCHOOL IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF MASTER OF SCIENCE IN PROCUREMENT AND SUPPLY CHAIN MANAGEMENT OF MAKERERE UNIVERSITY

PLAN 'A'

SEPTEMBER, 2018

DECLARATION

I, Nakalema Mildred do hereby declare that, this is my original work and has never been published or submitted to any university or any institution of higher learning for any award where authored work has been referred to, citation was made accordingly.

Sign:.....

Date:17th Sep. 2018.....

NAKALEMA MILDRED (A STUDENT)

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APPROVAL SHEET

This is to certify that this dissertation has been submitted for examination with our approval as university supervisors. It has been done under our supervision and has met the academic requirements and is now ready for submission.

Prof. Joseph M. Ntayi (PhD)

Sign .....

Date.....17/9/18.....

Ms. Namukasa Juliet

Sign.....

Date....26/9/18.....

DEDICATION

I dedicate this dissertation to my parents, supervisors, husband and friends for the over whelming support, advise and encouragement that they gave me during the research process. Thank you so much for the financial and moral support throughout my studies.

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I thank God who kept me safe especially when I was collecting data which was not an easy task.

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LIST OF ACRONYMS

UTL - Uganda Telecom Limited

MTN - Mobile Telecommunication Network

UCC - Uganda communication Commission

2G - Second Generation Retro Phones

OL - Organizational Learning

ESI - Early Supplier Involvement

PLM - Product Lifecycle Management

IT - Information Technology

R&D - Research and Development

PV/IV June Report - Physical Inventory & System Inventory June Reports

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ABSTRACT

The purpose of the study was to examine the relationship between market complexity, early supplier involvement, organizational learning and stock Obsolescence in the Telecommunication industry in Uganda. The motivation for the study lies on concern regarding several cases relating to the increased volumes of unused stock in warehouses which cost such companies millions of dollars and other stock holding costs. A cross-sectional design was adapted with a sample size of 38 companies (10 Telecommunication companies and 28 suppliers). The questionnaires were given to 340 respondents and the response rate was 63%. 215 questionnaires were entered and analyzed using Statistical Package for Social Scientists (SPSS V23) with a focus on descriptive statistics, Pearson correlation coefficient, regression analysis and ANOVA tests. The reliability and validity of the instrument were established using Cronbach Alpha coefficient and content validity index respectively. The Pearson correlation coefficient results revealed a positive and significant relationship between the variables of market complexity, early supplier involvement, organizational learning and stock Obsolescence. Regressions analysis results revealed that Organizational Learning, Market Complexity and Early Supplier involvement account for only 48% of the variance in Stock Obsolescence. Thus the remaining variance of 52% can be attributed to other factors that are outside the scope of this study. The results further showed that Market Complexity and the Early Supplier Involvement are predictor variables for stock obsolescence while Organizational learning was not observed as a significant predictor for the Stock obsolescence. A conclusion was made and several recommendations proposed such as promoting and appreciating early supplier involvement, involving suppliers early in the product development stages, advancement in technology, investment in innovation, among others.

CHAPTER ONE

INTRODUCTION

This chapter consists of the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, scope of the study, significance of the study and the conceptual framework.

1.0 Background of the study

In today's global business environment, stock obsolescence is one of the most costly inventory expenses that results in extreme losses for a telecommunication company (Lemu, 2007). This comprises technology used systems, processes and the equipment not being up to standard with the existing systems. There have been a lot of changes in the telecommunication industry related to technology and complex desires of market participants for example the Uganda communication commission (UCC) discourages telecommunication companies from setting up independent towers or masts in order to reduce the radiation effect which in the long run has health implications. Telecommunication companies need to share the already existing built towers or masts, that is to say, new telecom companies like K2, Vodafone, Roke, Africell and Smart share already existing towers or masts with MTN, Airtel and Uganda Telecom Ltd (UTL). The telecommunication hardware used to build towers a number of years ago would become obsolete because it can't support the current capacity and design thus the need to write it off or decommission, yet it cost millions of dollars for such companies to adapt to the current technological requirements which would support tower or mast sharing.

Failure to sell the stock may be attributed to complexity of the market, inadequate capability to learn and failure to involve suppliers early. Furthermore, if a company like Airtel had a surplus of second generation retro handset phones (2G) in the warehouses, then android phones become more popular as it is the case today where everyone would be interested in having an android phone that supports internet usage, email, online purchases and many more services. Therefore the second generation retro handset phones would become obsolete stock.

Telecommunication companies have to ensure that they engage and involve suppliers early so as to reduce the levels of stock obsolescence as well as utilize feedback shared from previous organizational learning to aid in decision making. A combination of theories can be used to explain stock obsolescence. These include; complexity theory and organizational learning theory.

The organizational learning theory argues that with the emergence of the global economy and the accelerating dynamics of the marketplace, firms everywhere have realized the need to improve constantly their products and processes in order to create and retain competitive advantage (Flood and Olian, 1996). The current interest in organizational learning (OL) among management scholars and practitioners reflects this new competitive landscape. It is nearly impossible to find an industry that is not engaged in continuous or periodic innovation and reorientation due to the dynamic nature of most markets especially the telecommunication industry. As a consequence, the potential contribution of time-dependent resources or capabilities like organizational learning to competitive advantage has been ignored. For example, Barney (1991) states that a firm is said to enjoy a sustained competitive advantage when it is implementing a ‘value creating strategy’ not simultaneously being implemented by any current

or potential competitors and when these other firms are unable to duplicate the benefits of this strategy. However organizational learning theory does not take into consideration of the rapid changes in the telecom industry and an appropriate working definition of the sustainability of competitive advantage is also lacking. This therefore calls for complexity theory to address the above weakness.

Complexity theory states that all organizations are complex social systems and understanding them as such provides executives with a powerful tool to create the conditions that will help organizations to co-evolve with a constantly changing economic and market environment. Complexity theory attempts to explain the nonlinear relationship and complex interactions that evolve dynamically over time with feedback effect. The theory further offers a synthesis of two competing perspectives on how organizations adapt to their environments. It help us understand how systems can learn more effectively and spontaneously self-organize into more structured and sophisticated forms that are better adapted to their environments since business success and failure are outcomes of complex interactions between an organization and its changing environment (Levy, 1994). These complexities could be mitigated through early supplier involvement (Park, 2016). We therefore conclude that one theory may not singularly explain the concept of stock Obsolescence but rather a combination of organizational learning and complexity theories are sufficient.

Early supplier involvement (ESI) has as well gained its importance in industry sectors such as Telecommunication in developing competitive advantage to outperform rivals in market share while defending against competitive forces and derive reduced stock obsolescence. It is generally

known that approximately 80 per cent of the manufacturing cost of a product is determined by the design of the product (Mikkola and Larsen, 2003). Early supplier involvement in the product development process, along with a well implemented Product Lifecycle Management (PLM) system used in a collaborative manner, are contributing factors for companies' success in bringing products to market quickly at the lowest cost and best quality (Gentry & Savitskie, 2008; Liu, Maletz & Brisson, 2009). However, identifying improvements to the collaborative product development process is difficult, as most companies do not recognize how much suppliers currently contribute to the process. With the evolvement of globalization, various buyer-supplier relationships are formed to keep up with the competition of product development activities, especially in the electronics industry (De Toni, Nassimbeni & Tonchia, 1999). In Uganda, Early Supplier involvement has received renewed attention of executives and telecommunication companies within the last decade coupled with market complexity and organizational learning (Handfield, Ragatz, Peterson & Monczka, 1999) to reduce the risk of obsolescence of stock. But no wonder, the aspect of stock obsolescence still persists in these organizations.

1.1 Problem Statement

Despite the benefits associated with market complexity, organizational learning and early supplier involvement, telecommunication companies such as Airtel Uganda Limited, Africell and MTN Uganda are still experiencing increased volumes of unused stock in warehouses which has cost such companies millions of dollars and other stock holding costs. There has been traditionally minimal involvement by suppliers in the development of new or future products and utilization of organizational learning feedback as a result of dynamic changes in the market and

technological advancement in the industry. Failure to involve suppliers earlier has to some extent deprived telecommunication companies the support in the development of key product specification which increases the risk of stock obsolescence. For example, as at June 2017 Airtel Uganda had 47% (3.2 million dollars in value) of their stock ageing greater than two years which is a cost to the company (Source; PV/IV June Report). Besides, both manufacturers and suppliers are doubtful and have lost interest in implementing Early Supplier Involvement because they are still haunting and obsessing with the problem of outweighing between costs and benefits of implementing early supplier involvement. Burnes and New (1996) deduced that the more an activity involves changes in both the customer's and supplier's operations the more there is likely to be an even distribution of costs and benefits. Therefore, there's need to study the relationship between market complexity, organizational learning, early supplier involvement and stock obsolescence in the Telecommunication industry.

1.2 Purpose of the Study

The study will examine the relationship between market complexity, organizational learning, early supplier involvement and stock obsolescence in the telecommunication industry.

1.3 Objectives of the Study

i. To establish the relationship between market complexity and Organizational Learning in the telecommunication industry.

ii. To establish the relationship between early supplier involvement and stock obsolescence the Telecommunication Industry.

iii. To establish the relationship between Organizational Learning and early supplier involvement in the telecommunication industry.

iv. To establish the relationship between Market complexity and early supplier involvement in the telecommunication industry.

v. To establish the relationship between market complexity and stock obsolescence in the Telecommunication Industry.

vi. To establish the relationship between Organizational Learning and Stock Obsolescence in the telecommunication industry.

1.4 Research Questions

i. What is the relationship between market complexity and Organizational Learning in the telecommunication industry?

ii. What is the relationship between early supplier involvement and stock obsolescence the Telecommunication Industry?

iii. What is the relationship between Organizational Learning and early supplier involvement in the telecommunication industry?

iv. What is the relationship between Market complexity and early supplier involvement in the telecommunication industry?

v. What is the relationship between market complexity and stock obsolescence in the Telecommunication Industry?

vi. What is the relationship between Organizational Learning and Stock Obsolescence in the telecommunication industry?

1.5 Scope of the Study

1.5.1 Content Scope/Conceptual Scope

The study focused on establishing the relationship between market complexity, organizational learning, early supplier involvement and stock obsolescence in the telecommunication industry.

1.5.2 Geographical Scope

The study was conducted amongst the telecommunication companies in Uganda specifically Kampala district because all these companies' headquarters are centered within Kampala.

1.6 Significance of the Study

i. The study aimed at guiding policy makers on the prominent issues required to reduce stock obsolescence in the Telecommunication Industry.

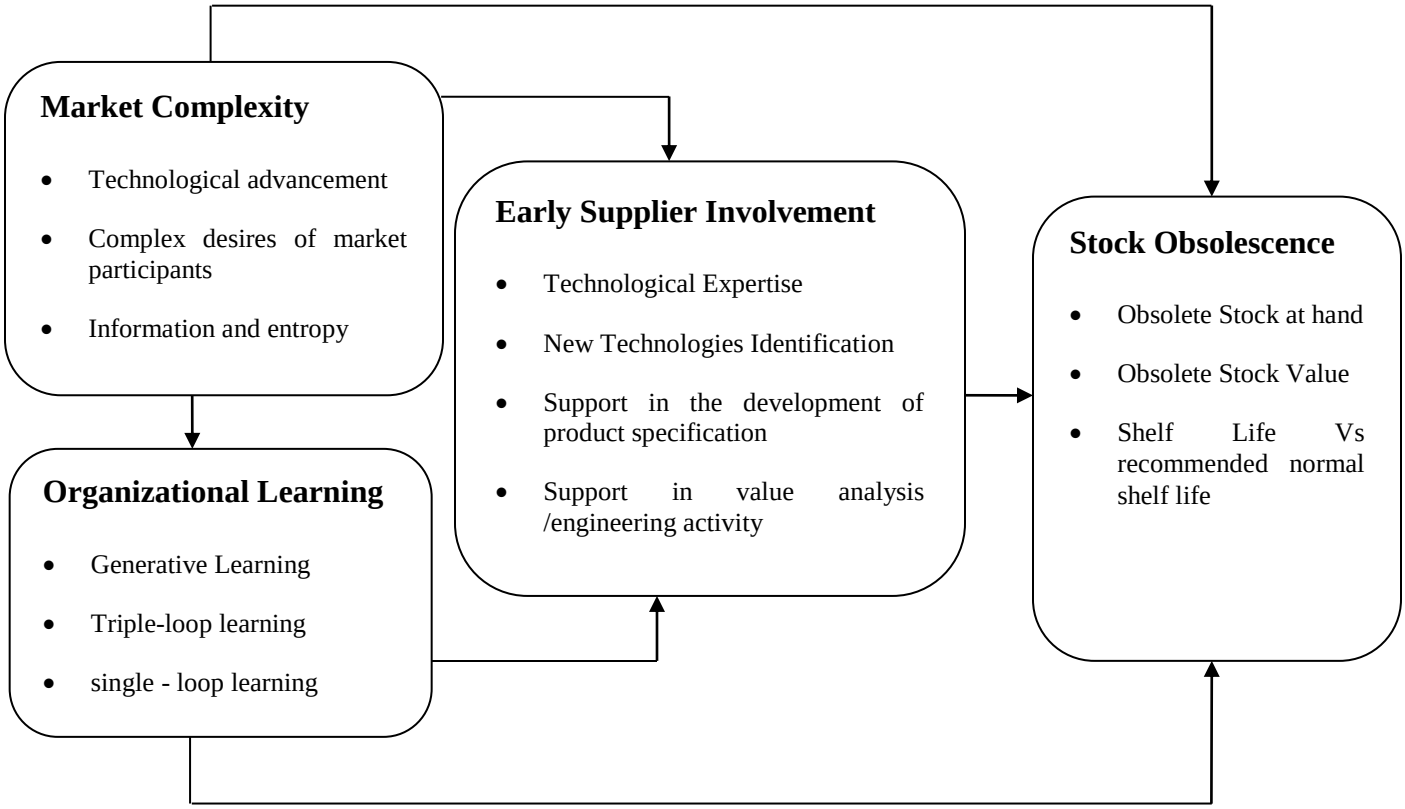
ii. The study will guide future research in both private and public agencies regarding the relationship between market complexity, organizational learning, early supplier involvement and stock obsolescence.

iii. The study was aimed at promoting the existing knowledge in understanding the association between market complexity and early supplier involvement and stock obsolescence among private and public agencies in Uganda.

iv. The study provided a descriptive analysis on the relevance of market complexity, organizational learning, stock obsolescence and early supplier involvement in the telecommunication industry.

1.7 Conceptual Framework

Fig.1: Conceptual Model



Source: Adopted from literature review (Dowlatshahi, 1998; Chilikon and Muturi, 2015).

Fig.1 above examines the relationship between market complexity and organizational learning, Early Supplier Involvement and stock obsolescence, organizational learning and early supplier involvement, market complexity and early supplier involvement, market complexity and stock obsolescence, organizational learning and stock obsolescence. The independent variables of the

study are market complexity and organizational learning and the dependent variable is stock obsolescence mediated by early supplier involvement.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter gives a review of literature from different authors relating to market complexity, early supplier involvement, organizational learning and stock obsolescence in the Telecommunication industry. It focused on the objectives of the study which guided the entire research. The purpose of this review was to examine the relationship between market complexity, early supplier involvement, organizational learning and stock obsolescence in the telecommunication industry.

2.1 Market complexity and Organizational Learning in the telecommunication industry

Organizational learning has become a key resource for improving market complexity (Hoe and McShane, 2010; Jyothibabu et al., 2010) as companies with the capacity to learn faster are likely to respond to market challenges better than competition. According to Chang and Ahn (2005) business performance is inclusive of both organizational performance and market performance; where market performance is a measurement system that is expected to cover all aspects of organizational performance in the market place while organizational performance is an internal or employee-focused performance.

Levitt and March, (1996) expands further on the dynamics of organizational learning where organizations are viewed as routine-based, history dependent, and target oriented. While lessons from history are stored in the organizational memory, the event itself is often lost. It is noted that past lessons are captured by routines "in a way that makes the lessons, but not the history,

accessible to organizations and organizational members." The problem most organizations face is that it is usually better to have the event rather than the interpretation. However, this is often too costly (both financially and time-wise) to be feasible.

Argrys and Schon (1996) identify three levels of learning which may be present in the organization: Single loop learning which consists of one feedback loop when strategy is modified in response to an unexpected result (error correction).For example when sales are down, marketing managers inquire into the cause and tweak the strategy to try to bring sales back on track. Double loop learning results in a change in theory-in-use, the values, strategies, and assumptions that govern action are changed in order to create a more efficient environment. In the above example, managers might rethink the entire marketing or sales process so that there will be no (or fewer) such fluctuations in the future while Generative or Deutero learning is about improving the learning system itself. This is composed of structural and behavioral components which determine how learning takes place, “learning how to learn."

The benefits of organizational learning are expected to be embedded and manifested in the products and services offered whereby customer value is tested in the complex market in terms of customer satisfaction. As the competitiveness and survival in the market continue to depend on customer reaction, we contend that this relationship should be of interest to organizations that practice organizational learning (generative, Triple-loop and single-looping).Furthermore, we argue that implementing market orientation is a learning process which bears much of the seminal work of Bui and Baruch (2010).

Review of literature shows that empirical studies on organizational learning have concentrated on market complexity in terms of organizational performance outcomes other than market-based performance outcomes. For example, empirical study by Politis (2005) focused on work outcomes such as productivity; also a study by Yeo (2003) on the relationship between organizational learning and performance indicated internal performance outcomes such as employee attitudes, motivation and commitment. Even the study by Yang (2007) on organizational learning emphasized internal performances. We, therefore, put it that existing empirical explanations of how organizational learning relates to market performance are incomplete especially if learning is expected to create wealth for organizations and shareholders.

The bottom-line is that as an organization learns to make sense of its markets, market-based information, such as customer-based behaviors, is expected to create outcomes that are manifested in its market performance (O"Keeffe and Harington, 2001). For instance, according to McGuinness and Morgan (2005), consumers" reaction as to how best an improvement can be successful has to be sought if organizational learning is expected to cause a change in market performance especially at consumer level. Also in line with the institutional theory the rate at which an organization learns need to be better than competitors if changes in the marketplace are to be expected; and at least in line with market changes in order to cause an impact in the market place (Saru, 2007; Konidari and Yvan, 2006).

Empirical research on the link between organizational learning and market performance that is complex is still scare. However a significant body of literature emphasizes that organizational learning is a strong source for gaining competitive advantage which in turn implies achieving

better organizational performance. Garnett et al. (2008), Hancott (2005) and Schiuma and Lerro (2008) noted that a good number of variables have been used in measuring organizational performance which include profitability measures, shareholder return, return on sales, number of new products, return on assets, return on capital, return on sales and others. In this study we emphasize the importance of organizational learning in influencing market performance in terms of financial performance which is also part of market complexity since the financial component of an organization is much a result of customer buying, market growth which is expected to be attained if positive learning has taken place in the organization and customer satisfaction implying that the organization has successful learnt to manage and implement the marketing concept.

The main factor for organization to succeed in innovation is organizational learning. In fact, organizational learning and innovation can be viewed as "intangible" resources because they are hardly imitated (Edmondson and Moingeon, 1998). Lukas (1996) acknowledged "organizational learning is considered by many scholars as a key to future organizational success". Therefore, organizational learning is recognized as a critical factor to innovation success. Furthermore, Stata (1989) mentioned that organizational learning leads to innovation especially in knowledge-intensive of the industry which individual and organizational learning lead to further innovation and creates sustainable competitive advantage. Sinkula et al. (2002) highlighted that the important role of organizational learning capabilities is generating innovation. Organizations that possess a superior learning are able to coordinate and combine their traditional capabilities and resources in new and distinctive methods, providing more value for their customers and, in general, stakeholders compared to their competitors (Teece et al., 1997).

Organizational learning is the capacity or processes within an organization to maintain or improve performance based on experience, (Nevis et al., 1995, p. 73). According to Dodgson (1993), Learning is a dynamic concept, and its use in theory emphasizes the continually changing nature of organizations. A number of theorists have recognized different types of learning, Double-loop learning which is required to make fundamental changes in basic assumptions about the competitive environment (Argyris and Schon, 1978). In addition to the above, single-loop learning relates to improvements in existing organizational processes. Similarly, Senge (1990) contrasts "generative" with "adaptive" learning. Both levels of learning are necessary to the pursuit of competitive advantage, as after periods of significant discontinuous change, incremental or adaptive learning may be required to help consolidate transformational learning (Nevis et al., 1995).

2.2 Early supplier involvement and stock obsolescence the Telecommunication Industry

The process of early supplier involvement (ESI) is recommended in the initial planning stages for a product, in fact most designers say the earlier the better. ESI presents an engineer with a direct outline of a supplier's capabilities. When suppliers are involved early in a project's design phase, it provides cost cutting benefits, makes the project more feasible to manufacture, and ultimately cuts down the lead time between concept and production. Early supplier involvement in the product development process, along with a well implemented Product Lifecycle Management system used in a collaborative manner, are contributing factors for companies' success in bringing products to market quickly at the lowest cost and best quality (Gentry & Savitskie, 2008; Liu, Maletz & Brisson, 2009). However, identifying improvements to the collaborative product development process is difficult, as most companies do not recognize how

much suppliers currently contribute to the process and how they play a vital role towards obsolescence of stock.

Making a profit is the admitted objective for most enterprises all over the world. To achieve this objective, cutting cost is the most direct way. But, how to cut costs effectively and efficiently? As a result of intense competition by globalization, the fastest and obvious strategy is outsourcing and taking advantage of cheaper labor wages. Since the product design phase determines majority of the manufacturing cost for a product (Clark & Fujimoto, 1991; Ernst & Kamrad, 2000; Jaikumar, 1986; Wang, Shen, Xie, Neelamkavil & Pardasani, 2002), having suppliers sharing new technology, providing product specification or supporting in Value Engineering (VE) during the early stage of product design to minimize product cost and maximize quality becomes a trend (McIvor & Humphreys, 2004). For various outsourcing strategies, the buyer-supplier relationships evolved to ODM or further to CDM, in which the collaboration has been more extensive than ever. Suppliers are not only involved in the early stage of product development but also in market analysis and product planning which helps to reduce the impact of stock Obsolescence.

New technologies identification while using the suppliers as “gatekeepers”, the buyer firm has a greater possibility of coming into contact with innovative ideas and choosing the most promising ones. Furthermore involving suppliers early enough provides support in the development of product specifications, supplier can help the buying firm by identifying and calculating the importance and technological impact of each product specification and sharing technological expertise which helps the organization to know which technologies are available within the main

suppliers can influence the designer's and the product manager's choice in the development of a new product. There's provision of support in value analysis/engineering activity where the aim of value analysis and value engineering is to manufacture a product at the lowest cost, but with the highest degree of all the functions appreciated by the customer and without those functions whose utility is not perceived. Here the contribution of the suppliers can be determinant.

2.3 Organizational Learning and Early supplier involvement in the telecommunication industry

Strategic alliances are inter-firm cooperative arrangements aimed at achieving the strategic objective of the partners which is part of early supplier involvement (Jong-Min, 2011) adopted Das and Teng (1998). Strategic inter-firm relationships stem from a general perception that they enable firms to secure valued resources and technology at potentially lower risk than corporate acquisitions (Ireland et al., 2002). In these relationships, the substantial exchange of knowledge and information that results in joint learning occurs between participating firms. Through strategic relationships, complementary but scarce resources or capabilities of the involved firms are combined, and as a result, unique new products, services or technologies are jointly created through organizational learning. According to Jong-Min (2011) the difference between the electronic market and electronic partnerships is the setting of buyer and supplier firms' relationships. In the electronic market, there exist various suppliers and buyers that interact to supply and purchase products. Thus, the electronic market represents multilateral relationships of suppliers and buyers. The relationships of nonspecific suppliers and unspecified customers in the electronic market continue for a relatively short term.

However, electronic partnerships exist in a bilateral setting, which represents a dyad relationship between a supplier and a customer (Bakos, 1991). In electronic partnerships, existing relationships with customer and supplier firms can become more tightly coupled and continue for a longer period than in the electronic market (Kim et al., 2005-6). Because of the shorter continuance and the multilateral form of relationships between trading firms, the amount of transaction information exchanged in the electronic market is much smaller than that in electronic partnerships.

The organizational learning process is roughly composed of three stages: information collection, interpretation and learning (action taken) Jong-Min (2011) adopted (Daft and Weick, 1984). The provision or collection of information is the first step of organizational learning. Information is a flow of messages or meanings, which might add to, restructure or change knowledge. Information is a necessary medium or material in organizational learning for knowledge creation (Nonaka, 1994). Thus, types of information exchanged between trading firms also give rise to inter-organizational learning (Christiaanse and Venkatraman, 2002). The communication of management information, such as manufacturing technology and new product development, facilitates the creation and transfer of organizational knowledge in participating firms for cooperative projects. The exchange of transaction information contributes to the creation of new knowledge that is used for resolving the problems in the supply chain.

The degree of inter-organizational trust is positively influenced by the frequency of interaction and communication between both firms involved (Tomkins, 2001). The recurrent interaction and communication of information help both involved parties learn about each other's intentions and

actions, and this learning can lead to the building of trust between both parties. The communication of information also provides ways or routes, from which partners further develop common values and norms (Das and Teng, 1998). This sharing of values and beliefs between both parties contributes to the building of inter-organizational trust. In traditional market relationships, if one party to the relationships does not faithfully fulfill a contract, another party can be easily chosen without high switching costs, since there are many other firms that can be used to replace that party for those transactions. The market based relationships are also characterized by a minimum amount of information exchange between trading firms.

According to Jong-Min (2011) the early involvement of suppliers and customers in target costing processes contributes to the organization's development and design of a profitable product by adding or sharing their knowledge and expertise about components' design, technologies and the user needs. When a company establishes a product-level target cost, a firm breaks it down to the component level. Then, the component-level target costing is begun and utilized to discipline and focus suppliers' creativity to find ways to design and manufacture components that meet the target cost and required functionality. TCS are normally applied in the product development style characterized as simultaneous engineering or 'rugby' style product development. 'Rugby' style development demands the continuous involvement of members of related departments and produces conditions which give rise to knowledge creation (Nonaka, 1994).

2.4 Market complexity and early supplier involvement in the telecommunication industry

Researchers such as Lawther and Martin (2005) questioned the traditional way of public procurement and suggested moving towards public procurement partnerships, the market

complexity of procuring information technology, software and IT-services being one of the reasons for such a move that necessitates need to have early supplier involvement. Lawther and Martin (2005) analysis contrast the assertion made by Harrigan (1985) and Porter (1985) stating that, adversarial relationships are effective in public procurement settings, where supplier relationships basically serve to facilitate the exchange process and fulfill the contract requirements, relationships cannot be used to intervene with a procurement process that is supposed to be open and fair to all bidders in a complex market. Lawther and Martin (2005) further explains that the relational approach, based on the advantages of cooperation, centers on shared resources, joint product development, and process redesign, which improve efficiency (in production and value creation) for both the buyer and the seller.

Telecommunication is changing from an industry that was all about voice to one that is most about data .Data traffic (at present mostly driven by simple text messaging service called the short message service (SMS) and Data or internet are already contributing well to the revenues of some operators and according to forecast, will soon overtake voice traffic as the main source of revenue for mobile operators. According to Arino and de la Torre (1998), the increasing complexity of markets makes it difficult for firms to possess all the resources to compete effectively, and exchange leads to relational interdependency also at times called early supplier involvement. Storey et al. (2006) argues that the performance and the internal efficiency of a business is viewed as dependent on its ability to develop resources through relationships rather than its ability to exploit resources in isolation from other companies, and resource development is seen as taking place between companies rather than just within companies. However, Sanchez et al. (1996) warn that organizations should collaborate to achieve these benefits where it makes

logical and commercial sense to do so. IMP Project Group (1982), Hakansson and Snehota (1995) and Gummesson (2006), comments that in the IMP literature, relationships are seen as a company's most important assets, because without them it cannot gain access to the resources of others, acquire the supplies that it needs, or solve its problems and thus generate revenue.

Modern technologies in communication and information create considerable changes in the field of cooperation among companies given the complex markets in which they do operate. Other companies based upon traditional strategies found little advantages and short term lifespan of products and lack of customers' loyalty, and little product replacement costs accompanied with other threats. Therefore, it is necessary to apply new cooperation models in the format of supply chains such as early supplier involvement.

Bearzotti et al., (2012) it is one of the most effective guidelines in this regard. Generally an electronic supply chain is a combination of temporary and related members (from geographical point of view) and by the use of IT for satisfying market needs and providing suitable competitive advantage for their members. Any creation of electronic supply chains needs a lot of reflective cooperation and better combination of organizations and temporary unity of communicative networks. Any lack of effective management in controlling and leading of cooperation among chain partners may cause further failures in business.

Market complexity makes companies to improve on-line communication systems, Chen and Su (2011). For example, internet may increase relations through more interaction among companies and customer. Timer points out to the role of internet in providing a powerful supplying chain from commercial point of view in order to remove any challenges of virtual institutes. Other

researchers intend to provide different methods for controlling of electronic data transfer. Some of them believe that now is the time for the movement of supply chain towards on-line commercial societies. For example, general electric business network is an on-line commercial society that enables company to perform $ 1 billion commercial transactions with suppliers throughout the world on electronic and on-line basis.

Nikakhtar and Jianzheng (2012) early supplier involvement that involves Supply chain management focuses on general and long-term benefits and advantages for all members through cooperation and sharing of information. This may reveal the importance of communications and IT application in supply chain management. It is necessary to increase information sharing among supply chain members in order to reduce lack of insurance and increase the function of suppliers with high level and betterment of its functions. However this has to be effective in a non complex market.

According to Nikakhtar and Jianzheng (2012) in a complex market, companies have no chance to invest great amounts of money for redesigning of inter-organizational and technical processes. Also, it is necessary to invest for changing of traditional products and supplying services to customers and training of personnel for providing supply chain equipped with IT. Researchers believe that a part of the obstacles against development of supply chain management and/or integrated IT are: lack of integration and coordination between IT and considered commercial model, lack of suitable strategic program, weak infrastructure for IT, lack of application of IT in virtual institute and environment and also lack of suitable knowledge for execution of IT in supply chain management.

2.5 Market complexity and Stock Obsolescence in the telecommunication industry

According to Taherkhani1 and Masafinia (2013) the rapid pace of technological change and the growing complexity of products compel new ventures to connect to the external sources of knowledge and use them in their operations (Kessler, 2003). This is especially true among new ventures that typically have limited internal knowledge and skills. The liabilities of newness these firms experience in assembling resources and capabilities would encourage them to license other companies' technologies. Newness also limits new venture managers' capacity to develop all the skills needed and quickly commercialize their technologies and products. Over time, licensing connects new ventures to 'knowledge networks' (Powell et al., 1996) and gives them new knowledge that enhances their innovativeness which ultimately leads to stock obsolescence (Henderson and Cockburn, 1994). For example, as at June 2017 Airtel Uganda had 47% (3.2 million dollars in value) of their stock ageing greater than two years which is a cost to the company. This was to some extent associated with advancement in technology and complex desires of market participants.

New ventures operating in the complex market can also employ licensing to reduce their costs by lowering R&D spending (Hamilton, 1985), offsetting the limitations of their inexperience and newness (stock obsolescence). Licensing gives new ventures access to other companies' capabilities, instead of investing in uncertain R&D that may not generate these capabilities. This is important in view of the great technological and market uncertainties that characterize new ventures' markets with technological advancement, Complex desires of market participants and Information and entropy. According to Akinsola et al. (2000), in a complex market the industry production process and the products themselves are unique compared with other industries.

However, the products must be produced within the clients' requirements, designer's specifications, assigned time and budget so as to avoid obsolescence of stock.

2.6 Organizational Learning and Stock Obsolescence in the telecommunication industry

The most important thing to bear in mind while planning for profit is to procure the right quality at the right price. Procurement in highly technical areas required skill and experience on the part of the buying manager that is acquired through organizational learning so as to avert stock obsolescence. Cost improvement is simply the result of learning effect among workers, reflecting the development of skill and dexterity that occurs when a task is performed repeatedly. According to Ogbadu (2009) adopted (1986) acquisition circle consists of recognizing defining and describing the need; transmitting the need, investigating and selecting the supplier, order, receipt and inspection of good supplied, auditing the invoicing and closing the order. Consequently, cost of raw materials can be reduced by buying from the right suppliers at the right price without compromising quality.

In line with Organizational learning and stock obsolescence, Disposal of scrap and surplus are very important aspect of material management function, and if effectively done can contribute to the profitability of the firm. Scrap according to Ogbadu (2009) adopted Carter (1982) is the residue of process materials left behind during production while surplus is the materials from purchases which were not wholly consumed in the production. To achieve profitability in disposal of scrap and surplus, it involves organizational learning that involves decisions in the following areas: return to suppliers, selling to suppliers, selling to other firms, selling to dealers, Ogbadu (2009), things regarding Transportation, which is one of the aspects that can avert stock

obsolescence, the traffic section, which is involved in the physical movement of materials throughout the entire production stages, is important for profitability and cost reduction.
Materials movement could be in - house or external. The in-house are determined by the nature of the materials by the layout of the factory and by the type of product made.

It makes use of such devices as cranes, pipelines, trucks, forklift, etc. one plant to another or from stores at the head office to a plant as well as moving finished goods from suppliers. It involves waterways, pipelines, railroads, trucks, airplane, etc. For profitability it involves decisions in the following areas, the route, the carrier, methods of shipments and rates schedule. According to Ogbadu (2009), the relationship between the team management and the boards is not hostile but friendly due to lack of organizational learning in the companies. The managers and the directors cooperate in order to maximize the firms' incomes. In this context, the board should develop the organizational learning, help the management coalition and stimulate the innovation to adapt the firms to their environment (external vision). It must exercise a strategic control and not a restrictive financial control and stock obsolescence.

Some new ventures can also learn from licensing other companies' technologies. Although, licensing does not always enhance organizational learning, some ventures can capture important knowledge from the various licenses they obtain so as to reduce stock obsolescence in their respective companies. Consequently, exposure to external sources of technology through licensing could fuel organizational learning (Grant and Baden-Fuller, 2004).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses how the study was designed and carried out. It covered the research design, study population and sample size, sampling design and procedure, data collection methods, measurement of variables, validity and reliability, data analysis and the challenges encountered during the study.

3.1 Research Design

The study adopted a cross-sectional research design to establish the relationship between market complexity, organizational learning, early supplier involvement and stock obsolescence in the telecommunication industry. A quantitative approach was used to generate data that were analyzed on the basis of correlation and regression. A cross sectional design was used because the study involved a number of variables studied at a point in time.

3.2 Study Area and Location of the Study

The study was carried out from all the telecommunication companies in Kampala Central District.

3.3 Study Population and Sample Size

The study population constituted 10 telecommunication companies and 28 suppliers operating in Uganda. A sample of 10 respondents from the total population of 10 in telecommunication companies and 28 suppliers was selected using the works of Krejcie and Morgan (1970). A total

of ten (10) respondents in each telecommunication company and supplier firms were selected to participate in the study making a grand total of 380 respondents in both. Ten (10) respondents were selected so as to obtain adequate information and establish differences in response. The unit of analysis was telecommunication companies and their suppliers and the unit of inquiry was managers in different departments including procurement, stores, marketing, finance and Research and design department in both companies (telecommunication and suppliers). It was assumed that managers have reliable information on the topic under study.

3.4 Sampling Techniques and Procedures

Purposive sampling technique was used to select respondents (both companies and managers) because it focused on particular characteristics of a population that were of interest and consumes less time. The most knowledgeable and appropriate participants for the study were selected and gave accurate responses.

3.5 Data Collection Instruments

Primary data was collected from respondents using a self-administered questionnaire, this would create anonymity leading to more valid responses as well as allowing respondents to fill them at their convenience. The questionnaire was used because it facilitates the collection of quantitative data on the study involving a large population rather than qualitative data. The questionnaires were presented to the selected respondents in both the ten (10) telecommunication companies and suppliers; one questionnaire was given out to suppliers and another questionnaire given to respondents in the telecommunication companies. Two sets of questionnaires were used in the study so as to obtain adequate and reliable information as well as avoid bias.

3.6 Measurement of Variables

The questionnaire was designed according to the objectives and study variables. Responses to the questions were anchored on a five point Likert scale ranging from 5=strongly agree to 1=strongly disagree. A five point Likert scale was used so as to increase response rate and response quality along with reducing respondents' frustration level (Babakus and Mangold, 1992). This applied to the variables of market complexity, organizational learning, early supplier involvement and stock obsolescence as below;

i. **Market Complexity;** was measured using items like Technological advancement, Complex desires of market participants, Information and entropy adapted from the works of Tranfield & Smith (1998).

ii. **Organizational Learning;** was measured using items like Generative learning, Single-loop and Triple-loop learning adapted from the works of Bennett (1998); Mostafa (2005) and Sadler-Smith et al. (2003) as cited in Tahate (2010).

iii. **Early Supplier Involvement;** was measured using items like technological expertise, new technologies identification, support in the development of product specification and support in value analysis or engineering activity adapted from the works of Sekaran (2003).

iv. **Stock Obsolescence;** was measured using dimensions like Stock at hand, Stock value and Shelf life adapted from the works of Turner Lynn (2000).

3.7 Validity and Reliability of Instrument

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda and Mugenda, 2003).Validity of the research instrument was measured using the content validity index while on the other hand; The reliability of the scales was carried out by performing Cronbach Alpha Coefficient test (Cronbach, 1951). Alpha coefficient of above 0.7 for individual test variables was accepted (Nunally, 1978). And also according to Peterson (1994), reliability coefficient is only acceptable if it is above 0.6 for basic research. Content validity Index was used to test for the validity to ensure that the scales are meaningful to the sample and capture issues that are being measured and items were valid as they were above 0.7.

Table 1: Results of Content Validity Index and Cronbach Alpha Coefficient

Variable	**Anchor**	**Cronbach Alpha Coefficient**	**Content Validity Index**
Market Complexity	5 Point	.834	.778
Organizational Learning	5 Point	.877	.846
Early Supplier Involvement	5 Point	.818	.750
Stock Obsolescence	5 Point	.788	.833

Source: **Primary Data, 2017**

The results in the table above indicate that the research instrument was both reliable and valid as reflected by the Cronbach Alpha coefficient and the Content validity index respectively with values above 0.70 which are acceptable according to Nunnally (1978).

3.8 Data Collection Method

Primary data was collected using self-administered questionnaires. Secondary data was obtained through the use of historical analysis of minutes from staff meetings, Audit reports, and journals among others. According to Sekeran (2011) secondary data is considerably cheaper and faster than doing original studies, very flexible and the best to use where a network of data archives in which survey data files are collected and distributed is readily available.

3.9 Procedure of Data Collection

The researcher got a recommendation letter from the University authorizing and recommending the conducting of research. This recommendation letter was then taken to respondents (telecommunication companies and supplies) to obtain approval for conducting the study with their help. The researcher then distributed the questionnaires to the selected respondents.

3.10 Data Processing, Presentation and Analysis

After data collection, the questionnaires from both categories of respondents were aggregated and stapled together. The data were then compiled, sorted, classified and entered into the computer analysis using the Statistical Package for Social Scientists (SPSS). Similar responses were entered once while different responses were entered differently. Descriptive and inferential statistics were produced. Correlation analysis was applied to establish the strength and direction of relationship between the variables. Regression analysis was run to establish variance in the dependent variable that is explained by the independent and the mediating variables.

CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF FINDING

4.0 Introduction

This chapter presents the findings from the study in relation to the objectives of the study and the research questions. It deals with the presentation, analysis and interpretation of data collected from the respondents. It includes the demographic information about Telecommunication companies and their opinions about Market complexity, organizational learning, Early Supplier involvement and Stock Obsolescence, as well as the correlation and regression analysis of the relationships between these variables. The presentation was done guided by the objectives of the study below;

i. To examine the relationship between market complexity and Organizational Learning in the telecommunication industry.
ii. To examine the relationship between early supplier involvement and stock obsolescence the Telecommunication Industry.
iii. To examine the relationship between Organizational Learning and early supplier involvement in the telecommunication industry.
iv. To examine the relationship between Market complexity and early supplier involvement in the telecommunication industry.
v. To examine the relationship between market complexity and stock obsolescence in the Telecommunication Industry.
vi. To examine the relationship between Organizational Learning and Stock Obsolescence in the telecommunication industry.

4.1 Firm Characteristics

4.1.1 The research intended to get a detailed understanding of the Firms' characteristics

The results in the table below show the distribution of the attributes for those Telecommunication firms and their supplier firms that participated in the study.

Table 2: Category of the Firm Age Distribution

		Category of firm		
		Telecom Companies	**Suppliers**	**Total**
Less Than 3 yrs	Count	2	1	3
	Column %	20.0%	3.6%	7.9%
3 - 5 yrs	Count	4	7	11
	Column %	40.0%	25.0%	28.9%
6 - 10 yrs	Count	2	10	12
	Column %	20.0%	35.7%	31.6%
11 - 15 yrs	Count		6	6
	Column %		21.4%	15.8%
Above 15 yrs	Count	2	4	6
	Column %	20.0%	14.3%	15.8%
Total	**Count**	**10**	**28**	**38**
	Sample %	**26.3%**	**73.7%**	**100.0%**

Source: **Primary Data, 2017**

Table 3: Number of Employees in Organization * Category of firm

		Category of firm		
		Telecom Companies	**Suppliers**	**Total**
1 – 10	Count		1	1
	Column		3.6%	2.6%
11 – 50	Count		5	5
	Column		17.9%	13.2%
50 – 100	Count	1	14	15
	Column	10.0%	50.0%	39.5%
100 – 200	Count	4	6	10
	Column	40.0%	21.4%	26.3%
Above 200	Count	5	2	7
	Column	50.0%	7.1%	18.4%
Total	**Count**	**10**	**28**	**38**
	Sample	**26.3%**	**73.7%**	**100.0%**

Source: **Primary Data, 2017**

The findings indicated that, out of 38 firms, 3 (7.9%) of the firms had existed for less than 3years (2 Telecommunication companies and 1 supplier), 11 (28.9%) of the firms had existed between 3-5years, 12 (31.6%) existed as long as 6-10years, 6 (15.8%) existed between 11 - 15years these were mainly suppliers to telecommunication companies and 6(15.8%) existed for more than 15 years ,these comprised of 2 telecommunication companies and 4 suppliers. This implies that the dominant firms had existed for less than 11years, these comprised of 8 Telecommunication firms and 18 suppliers. This further implies that the industry is still growing with quite a number of changes in service delivery I.e. internet, mobile money and voice.

The Researcher also studied the number of employees the firms had in their organization. The findings of the study were that out of the 38 Firms, 7 (18.4%) employed above 200 employees, 10 (26.3%) employed between 100 – 200 employees, 15 (39.5%) employed between 50 – 100 staff, 6 (15.8%) employed less than 50 staff and these were mainly suppliers. The

findings reveal that most of the Telecommunication firms employ more than 50 employees because they need human resource to run most of their operations for example sales, engineering though some of these services are outsourced to more experienced firms like IBM, Huawei, Ericsson and Nokia.

4.2 The study intended to get a detailed understanding of the characteristics of the Firm Officials and services offered by the different Firms that participated in the study

Table 4: Characteristics of the Firm Officials

		Category of respondent		
		Telecom Firm	**Supplier**	**Total**
Male	Count	47	88	135
	Column %	62.7%	62.9%	62.8%
Female	Count	28	52	80
	Column %	37.3%	37.1%	37.2%
Total	**Count**	**75**	**140**	**215**
	Sample %	**34.9%**	**65.1%**	**100.0%**

Source: **Primary Data, 2017**

From the table above, the study revealed that the majority of the respondents were males. Out of the 215 respondents 135 (62.8%) were males and 80 (37.2%) female. The male respondents dominated the study.

Table 5: Services Offered by the Firm

		Category of firm		
		Telecom Companies	**Suppliers**	**Total**
Fibre & Bandwidth	Count	7	4	11
	Column	70.0%	14.3%	28.9%
Consultancy	Count	2	2	4
	Column	20.0%	7.1%	10.5%
Value Added Services	Count	1	5	6
	Column	10.0%	17.9%	15.8%
IT & Maintenance	Count		5	5
	Column		17.9%	13.2%
Handsets & Accessories	Count		6	6
	Column		21.4%	15.8%
Network Equipment/ Services	Count		5	5
	Column		17.9%	13.2%
Others	Count		1	1
	Column		3.6%	2.6%
Total	**Count**	**10**	**28**	**38**
	Sample	**26.3%**	**73.7%**	**100.0**

Source: **Primary Data, 2017**

The findings revealed that Telecommunication Firms mainly provide Fibre & Bandwidth which is 70%, consultancy services 20%, Value Added Services 10% and the rest of the services are out sourced for example IT services to IBM, Network services to Nokia, Huawei and Ericsson, Handset and accessories, Others .This indicates that the Telecommunication companies have to work closely with the suppliers in order to mitigate technological advancements and complex desire of market participants.

4.2.1 The study intended to get a detailed understanding of the respondents' individual characteristics which is summarized as below;

Table 6: Individual Respondents' Highest Level of Education

		Categories		
		Telecom Firm	**Supplier**	**Total**
Diploma	Count	4	7	11
	Column %	5.3%	5.0%	5.1%
Degree	Count	39	106	145
	Column %	52.0%	75.7%	67.4%
Post Graduate	Count	22	16	38
	Column %	29.3%	11.4%	17.7%
Others	Count	10	11	21
	Column %	13.3%	7.9%	9.8%
Total	**Count**	**75**	**140**	**215**
	Sample %	**34.9%**	**65.1%**	**100.0**

Source: **Primary Data, 2017**

The researcher studied the education levels of the respondents and the findings revealed that out of the 215 respondents, 145 (67.4%) had a degree as their highest level of education, 38 (17.7%) of the respondents who participated in the study had post Graduate degrees as their highest level of education, 11 (5.1) had a diploma attained as their highest level of education and 21 (9.8%) of the respondents had attained other levels of education for example only Professional courses without degrees or diploma. The findings reveal that most of the respondents that participated in the study had a degree as their highest level of education.

Table 7: Individual Respondents' Profession

		Categories		
		Telecom Firm	**Supplier Firm**	**Total**
Finance	Count	15	20	35
	Column %	20.0%	14.3%	16.3%
Procurement	Count	15	19	34
	Column %	20.0%	13.6%	15.8%
Marketing	Count	16	19	35
	Column %	21.3%	13.6%	16.3%
Logistics/Stores	Count	5	22	27
	Column %	6.7%	15.7%	12.6%
Research & Design	Count	5	33	38
	Column %	6.7%	23.6%	17.7%
Others	Count	19	27	46
	Column %	25.3%	19.3%	21.4%
Total	**Count**	**75**	**140**	**215**
	Sample %	**34.9%**	**65.1%**	**100.0%**

Source: **Primary Data, 2017**

The researcher studied the profession of the respondents that participated in the study and the findings revealed that out of 215 participants, 16.3% of the participants had Finance and procurement as their profession, 16.3% Marketing, 12.6% Logistics, stores and research & design where other participants from other profession were 17.7%. The study further reveals that 21.4% of the participants were working in different sections despite the fact they belonged to other professions for example engineering, Audit, revenue assurance and many more.

4.3 Relationship between the Study Variables

Pearson (r) correlations were used to study the nature of the relationships between the study variables namely Organizational Learning, Market Complexity, Early Supplier Involvement and the dependent variable; Stock Obsolescence. The Pearson correlations oscillate between -1.000

and 1.000, with these values showing a perfect negative and perfect positive relationship respectively. The Pearson correlations in this table were presented together with the Standard Deviation and the Mean of the study variables, to determine the level of each among the firms.

Table 8: Mean, Standard deviation and Zero order correlation

	Mean	**SD**	**1**	**2**	**3**	**4**
Market Complexity (1)	1.974	.557	1.000			
Organizational Learning (2)	2.158	.679	.476**	1.000		
Early Supplier Involvement (3)	3.947	.526	.511**	.550**	1.000	
Stock Obsolescence (4)	1.842	.699	.597**	-.538**	-.630**	1.000
****. Correlation is significant at the 0.01 level (2-tailed)**						

Source: **Primary Data, 2017**

4.3.1 The Relationship between Market Complexity and Organizational Learning

The results in the table above indicated that there is a significant positive relationship between Market complexity and Organizational Learning ($r = .476^{**}$, $p<.05$). These results show that the challenges that come with Market complexity are bound to elicit desperation for seeking information among the staffs to the firms within the telecommunication industry, for example Single loop learning which consists of one feedback loop when strategy is modified in response to an unexpected result, challenges associated with technological advancements, information and entropy and Double loop learning that results in a change in theory-in-use, the values, strategies, and assumptions that govern action to be changed to create a more efficient environment thus mitigate complex market. In other words, the more the market becomes complex the more telecommunication companies will engage or invest time in organizational learning to effectively compete in the market.

4.3.2 The Relationship between Early Supplier Involvement and Stock Obsolescence

The findings of the study revealed that there is a significant negative relationship between early supplier involvement and stock obsolescence ($r = -.630^{**}$, $p<.05$). If telecommunication firms involve suppliers early in the initial planning stages of product development they are more likely to experience low levels of stock obsolescence. This could be attributed to the information sharing that the suppliers come with, enabling the firms to purchase more relevant hardware and software necessary for its operations. This reveals that stock obsolescence levels will drop as and when suppliers are more involved during the crucial stages in order to take advantage of the suppliers' expertise and capabilities thus a significant negative relationship.

4.3.3 The Relationship between Organizational Learning and Early Supplier Involvement

The findings of the study revealed that there is a significant positive relationship between Organizational Learning and early supplier involvement ($r = .550^{**}$, $p<.05$). The above study denotes that, the more telecommunication firms take learning from previous experiences the more they will involve suppliers early in the product development stages, telecom firms will be aiming at implementing or incorporating what has been learnt. Organizational learning in line with Single loop learning where there is need to modify strategy in response to an unexpected result (error correction). For example when sales are down, marketing managers inquire into the cause, and tweak the strategy to try to bring sales back on track and become more competitive.

4.3.4 The Relationship between Market Complexity and Early Supplier Involvement

The findings of the study revealed that there is a significant positive relationship between Market complexity and early supplier involvement ($r = .511^{**}$, $p<0.05$). The more the market becomes

complex the more telecommunication companies will involve suppliers in the initial product development stages (for example at the stage of idea generation, shared vision, product specification, features and functionality) they will be able to mitigate the challenges attributed to complex markets. The relational interdependency equips the telecommunication firms with resources to effectively compete in complex markets thus reduce the negative impact associated with complexity by involving suppliers early in the initial stages of product development.

4.3.5 The Relationship between Market Complexity and Stock Obsolescence

The findings of the study revealed that there is a significant positive relationship between market complexity and stock obsolescence ($r = .597^{**}$, $p<0.05$). The more the markets become complex there will be an increase in obsolete stock in the warehouses which is a huge cost to such companies. This is mainly associated with the complex desires of market participants or consumers and technological advancements. Therefore a unit increase in market complexity will lead to an increase in volume of obsolete stock due to many factors that are associated to complex markets like technological changes for example change from two generation – three generation – four generation and in the near future five generation which mainly affects the type of handset and modems or mifis that one should use to access the service.

4.3.6 The Relationship between Organizational Learning and Stock Obsolescence

The findings of the study revealed that there is a significant negative relationship between Organizational Learning and Stock Obsolescence in public procurement ($r = -.538^{**}$, $p<0.05$). Therefore the above study reveals that the more telecommunication firms commit or invest time to understand or learn the changes in the business environment, the more companies will register

reduced levels of obsolete stock thus improving service delivery, increased sales, increased customer satisfaction and increased supplier loyalty due to better business performance.

4.4 Regression Model

The regression model in the table below was presented to examine the level to which the Organizational Learning, Market Complexity and the Early Supplier Involvement can predict the Stock Obsolescence in the Telecommunications sector. The results for the model are indicated below;

Table 9: Results from the Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	2.539	1.097		2.315	.027
Market Complexity	.406	.180	.323	2.257	.031
Organizational Learning	.190	.152	-.184	-	.220
Early Supplier Involvement	-.483	.200	-.364	-	.021
Dependent Variable: Stock Obsolescence					
R	.722				
R Square	.522				
Adjusted R Square	.480				
Std. Error of the Estimate	.504				
F Statistic	12.366				
Sig.	.000				

Source: **Primary Data, 2017**

It was observed that the Organizational Learning, Market Complexity and the Early Supplier Involvement can predict 48.0% of the Variance in the Stock Obsolescence (Adjusted R Square = .480). The significant predictors in this study were Market Complexity and the Early Supplier Involvement (sig. <.05) while the Organizational learning was not a significant predictor of the

Stock Obsolescence (Beta = .184, sig. > .05). The results show that the regression model was statistically significant (sig. <.05).

4.5 Analysis of Variance Results (ANOVA)

ANOVA Results were presented to examine the differences among the firms on the study variables, relative to the study variables. The results are presented in the ensuing variables.

Table 10: ANOVA Results for the Telecommunications Firm Age by Variable

Total N = 38		**N**	**Mean**	**SD**	**Std. Error**	**F**	**sig.**
Market Complexity	Less Than 3 yrs	3	1.333	.289	.167	1.337	.277
	3 - 5 yrs	11	1.955	.522	.157		
	6 - 10 yrs	12	2.125	.711	.205		
	11 - 15 yrs	6	1.917	.492	.201		
	Above 15 yrs	6	2.083	.204	.083		
Organizational Learning	Less Than 3 yrs	3	1.667	.289	.167	1.552	.210
	3 - 5 yrs	11	2.045	.568	.171		
	6 - 10 yrs	12	2.417	.875	.253		
	11 - 15 yrs	6	2.417	.492	.201		
	Above 15 yrs	6	1.833	.516	.211		
Early Supplier Involvement	Less Than 3 yrs	3	4.476	.459	.265	2.934	.035
	3 - 5 yrs	11	3.762	.420	.127		
	6 - 10 yrs	12	4.026	.514	.148		
	11 - 15 yrs	6	3.567	.664	.271		
	Above 15 yrs	6	4.244	.230	.094		
Stock Obsolescence	Less Than 3 yrs	3	1.833	.289	.167	.548	.702
	3 - 5 yrs	11	1.818	.513	.155		
	6 - 10 yrs	12	1.917	.925	.267		
	11 - 15 yrs	6	2.083	.801	.327		
	Above 15 yrs	6	1.500	.548	.224		

Source: **Primary Data, 2017**

The results in the table above indicated that there are significant differences among the firms on Early Supplier Involvement (sig. <.05). However, these firms don't differ significantly on the Market Complexity, Organizational learning and Stock Obsolescence when examined in light of the period for which they have been operating (sig. > .05) .

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses all the findings reported in chapter four based on research questions and objectives, draws conclusions and suggests recommendations for the findings, limitations of the study and also proposes some areas for further research.

5.1 Discussion of Results

The discussions of results were based on the objectives and the findings of the study as below;

5.1.1 The Relationship between Market Complexity and Organizational Learning

The findings of the study indicated a significant positive relationship between Market complexity and Organizational Learning. These findings show that the challenges that come with Market complexity are bound to elicit desperation for seeking information among the staff of both suppliers and telecommunication firms. The main factor for organization to succeed in innovation is organizational learning. Organizational learning and innovation can be viewed as "intangible" resources because they are hardly imitated (Edmondson and Moingeon, 1998). Lukas (1996) acknowledged "organizational learning is considered by many scholars as a key to future organizational success". Therefore, organizational learning is recognized as a critical factor to innovation success.

There are three levels of learning which may be present in the organization; Single loop learning which consists of one feedback loop when strategy is modified in response to an unexpected result (error correction). For example when sales are down, marketing managers inquire into the

cause and tweak the strategy to try to bring sales back on track. Double loop learning results in a change in theory-in-use, the values, strategies, and assumptions that govern action are changed in order to create a more efficient environment. In the above example, managers might rethink the entire marketing or sales process so that there will be no or fewer of such sales fluctuations in the future while Generative or Deutero learning is about improving the learning system itself. This is composed of structural and behavioral components which determine how learning takes place, "learning how to learn."

5.1.2 The Relationship between Early Supplier Involvement and Stock Obsolescence

The findings of the study indicated a significant negative relationship between early supplier involvement and stock obsolescence. If telecommunication firms involve suppliers early in the initial planning stages of product development they are more likely to experience low levels of stock obsolescence. For example if the above stock obsolescence levels experienced in Airtel as of June 2017 where 47% (3.2 million dollars) of the stock had aged in the warehouses for greater than 2years which is a cost to the company thus the need to involve suppliers early in a product or project design phase, it provides cost cutting benefits like holding costs and also ultimately cuts down the lead time between concept and production. Early supplier involvement in the product development process, along with a well implemented Product Lifecycle Management system used in a collaborative manner, are contributing factors for companies' success in bringing products to market quickly at the lowest cost and best quality (Gentry & Savitskie, 2008; Liu, Maletz & Brisson, 2009). However, identifying improvements to the collaborative product development process is difficult, as most companies do not recognize how much

suppliers currently contribute to the process and how they play a vital role towards reducing obsolescence of stock levels.

5.1.3 The Relationship between Organizational Learning and Early Supplier Involvement

The findings of the study indicated a significant positive relationship between Organizational Learning and early supplier involvement. The above study denotes that, the more telecommunication firms take learning from previous experiences the more they will involve suppliers early in the product development stages, telecom firms will be aiming at implementing or incorporating what has been learnt. Organizational learning in line with Single loop learning where there is need to modify strategy in response to an unexpected result (error correction). For example when sales are down, marketing managers inquire into the cause, and tweak the strategy to try to bring sales back on track and become more competitive.

Strategic inter-firm relationships stem from a general perception that they enable firms to secure valued resources and technology at potentially lower risk than corporate acquisitions (Ireland et al., 2002). In these relationships, the substantial exchange of knowledge and information that results in joint learning occurs between participating firms. Through strategic relationships, scarce resources or capabilities of the suppliers are combined, and as a result, unique new products, services or technologies are jointly created through organizational learning. The organizational learning process is roughly composed of three stages: information collection, interpretation and learning (action taken) Jong-Min (2011) adopted (Daft and Weick, 1984). The provision or collection of information is the first step of organizational learning.

5.1.4 The Relationship between Market Complexity and Early Supplier Involvement

The findings of the study indicated a significant positive relationship between Market complexity and early supplier involvement. The more the market becomes complex the more telecommunication companies will involve suppliers in the initial product development stages (for example at the stage of idea generation, shared vision, product specification, features and functionality) they will be able to mitigate the challenges attributed to complex markets. The relational interdependency equips the telecommunication firms with resources to effectively compete in complex markets thus reduce the negative impact associated with complexity by involving suppliers early in the initial stages of product development. The market complexity of procuring information technology, software, engineering and IT-services being one of the reasons for such a move that necessitates need to have early supplier involvement. According to Arino and de la Torre (1998), the increasing complexity of markets makes it difficult for firms to possess all the resources to compete effectively and information exchange leads to relational interdependency also at times called early supplier involvement.

5.1.5 The Relationship between Market Complexity and Stock Obsolescence

The findings of the study indicated a significant positive relationship between market complexity and stock obsolescence. That is to say that the more markets become complex, there will be an increase in obsolete stock in the warehouses which is a huge cost to telecommunication firms or companies. This is mainly associated with the complex desires of market participants, technological advancements and information. According to Taherkhani1 and Masafinia (2013), the rapid pace of technological change and the growing complexity of products compel new ventures to connect to the external sources of knowledge and use them in their operations

(Kessler, 2003). The liabilities of newness these firms experience in assembling resources and capabilities would encourage them to license other companies' technologies. According to Akinsola et al. (2000), in a complex market the industry production process and the products themselves are unique compared with other industries. However, the products must be produced within the clients' requirements, designer's specifications, assigned time and budget so as to avoid obsolescence of stock.

5.1.6 The Relationship between Organizational Learning and Stock Obsolescence

The correlation coefficient results indicate a significant negative relationship between Organizational Learning and Stock Obsolescence in the telecommunication industry. Therefore the above study reveals that the more telecommunication firms commit or invest time to understand or learn the changes in the business environment, the more companies will register reduced levels of obsolete stock thus improving service delivery, increased sales, increased customer satisfaction and increased supplier loyalty due to better business performance. The most important thing to bear in mind while planning for profit is to procure the right quality at the right price. Procurement in highly technical areas required skill and experience on the part of the buying manager that is acquired through organizational learning so as to avert stock obsolescence. Cost improvement is simply the result of learning effect among organizations, reflecting the development of skill and dexterity that occurs when a task is performed repeatedly.

5.2 Conclusions

The findings of the study revealed that there was a significant positive relationship between Market complexity and Organizational Learning, these results showed the challenges that come

with Market complexity are bound to elicit desperation for seeking information among the staff of both suppliers and telecommunication firms yet one of the main factors for an organization to succeed in innovation is organizational learning.

Furthermore, the findings of the study revealed that there was a significant negative relationship between early supplier involvement and stock obsolescence, if telecommunication firms involve suppliers early in the planning stages of product development they were more likely to experience low levels of stock obsolescence.

Organizational Learning and early supplier involvement as constructs in the study revealed a significant Positive relationship implying that the more telecommunication firms take learning from previous experiences the more they would involve suppliers early in the product development stages, telecom firms would instead implement what had been learnt. Organizational learning in line with single-loop learning, generative and triple-loop learning gave telecommunication firms and suppliers an opportunity to learn from their mistakes and become more competitive. The more telecommunication firms invested time to understand or learn the changes in the business environment, the more companies would register reduced levels of obsolete stock thus improving service delivery, increased sales, increased customer satisfaction and increased supplier loyalty due to better business performance.

Market complexity and early supplier involvement as constructs in the study were noted to be significant predictors of stock obsolescence in the telecommunication industry, implying that the more telecommunication firms involve suppliers in the initial product development stages the more they would be able to mitigate the challenges attributed to complex markets.

Market complexity and stock obsolescence as constructs in the study revealed a significant positive relationship, implying that the more markets became complex, there would be an increase in obsolete stock in the warehouses which was a huge cost to telecommunication firms or companies. This was mainly associated with the complex desires of market participants, technological advancements and information.

Finally, the predictor variables in this study account for 48% of stock Obsolescence in the Telecommunication Industry. This covers only Market complexity and early supplier involvement while organizational learning was confirmed a non-significant predictor of stock obsolescence .The remaining percentage may be associated with other factors outside the study thus it's important to consider variety of factors as they apply to each company other than generalize the predictors of stock obsolescence.

5.3 Recommendations

Telecommunication firms should promote and appreciate early supplier involvement as this was vital in mitigating challenges associated with complex markets to enable effective competition.

Involving suppliers early in the product development stages would enable telecommunication firms access strategic, technical and scarce resources or capabilities, the increasing complexity of markets made it difficult for firms to possess all the resources to compete effectively and information exchange thus the need for involving suppliers early as they were experts in what they do or produce due to specialization (expert's knowledge).

Telecommunication firms and suppliers should reduce stock obsolescence levels by putting in place measures like advancement in technology, investment in innovation and own your innovation, information and entropy, know your customers that's to say segment your market to appropriately address the Complex desires of market participants in order to mitigate challenges associated with complex markets and leverage on the benefits that come with involving suppliers early in product or service development stages, for example, as at June 2017, 47% of stock worth 3.2 million dollars had stayed in the Airtel Uganda warehouses for more than two years therefore there was still need to embrace technological advancements and complex desires of market participants right from the initial stages of product development and service delivery.

5.4 Research Limitations

The unwillingness and unresponsiveness of respondents to fill the questionnaires for fear of losing classified information to competition despite clearly explained intentions as highly academic as stated in the introduction letter to win the respondents confidence.

Failure to receive the filled questionnaires back on time from the respondents due to busy schedules at work.

The study was faced with limited responses from the targeted respondents. Some of the respondents were not sure of whether the information submitted would be treated with utmost confidentiality. As a result, some refused to answer the questions and consequently, questionnaires collected from the field were fewer than those that were distributed.

Difficulty in accessing data as procurement officers and suppliers could not reveal the information leading to some questionnaires half answered.

The researcher used closed ended questionnaire as a research instrument, the data collected was only limited to the space provided and this meant that vital information could have been left out during data collection.

5.5 Possible Areas for further Research

The study could only account for 48% of Stock Obsolescence in the Telecommunication Industry .This means that there are still other factors still significant vacant variables that can cause positive significant change in stock Obsolescence. There is still need to carry out more research about the relationship between Organizational learning and stock obsolescence since the current study reveals that Organizational learning was not a significant predictor of the Stock Obsolescence.

There is still need to carry out more research to find out as to why there is still less trust between telecommunication firms and suppliers regarding information sharing (confidentiality issues) especially key suppliers.

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APPENDICES

Appendix One: Questionnaire for Telecommunication Companies

MAKERERE UNIVERSITY
MAKERERE UNIVERSITY BUSINESS SCHOOL
GRADUATE AND RESEARCH CENTRE

Dear respondent,

Your company has been selected to participate in a study on **MARKET COMPLEXITY, EARLY SUPPLIER INVOLVEMENT, and ORGANISATIONAL LEARNING AND STOCK OBSOLESCENCE IN THE TELECOMMUNICATION INDUSTRY.** This study is intended for only academic purposes. The information provided will be treated as highly CONFIDENTIAL. The researcher guarantees the destruction of the acquired information by shredding or burning once the data has been analyzed and inferences drawn. Your co-operation is highly appreciated.

SECTION A: Background Information

Please tick the most appropriate option

1. What is your Company Name

2. Gender

Male	Female
1	2

3. What is your profession?

Finance	Procurement	Marketing	Logistics/Stores	Research & Design	Others
1	2	3	4	5	6

4. Please indicate your Professional qualification?

CIPS	CPA/ACCA	CILT	NEVI	CIM	Others
1	2	3	4	5	6

5. What position do you hold in the company?

Supervisor	Manager	Director	Other(Specify)
1	2	3	4

6. Please indicate your highest level of education attained

Diploma	Degree	Post Graduate	Other(Specify)
1	2	3	4

7. How long has this company been in existence?

Less than 3 years	3-5 years	6- 10 years	11-15 years	Above 15 years
1	2	3	4	5

8. What services does the company provide?

Mobile Data/Internet	Voice Services	Valueadded Services	Commercial Data /Enterprise	BULK SMS	Mobile SMS	others
1	2	3	4	5	6	7

9. How many employees are in your company?

1-10	10-50	50-100	100-200	Above 200
1	2	3	4	5

10. What is your company's annual turnover?

Below 5,000,000	5,000,000 -10,000,000	Above 10,000,000
1	2	3

11. What is your company's annual profitability (UGX)?

Below 10,000,000	10,000,000 - 50,000,000	Above 50,000,000
1	2	3

In the following sections please state the extent to which you agree or disagree to a particular statement about each competence by ticking the appropriate response.

SECTION B: MARKET COMPLEXITY

	Technological advancement	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
TA 1	My organisation recognizes the impact that changes in technology have on its business	1	2	3	4	5
TA 2	My Organisation makes investment to stay abreast with technological advancement	1	2	3	4	5
TA 3	My Organisation trains staff to keep up to date with the technological changes in the industry	1	2	3	4	5
	Complex desires of market participants					
CD 1	My Organisation invests time and effort to understand the desires of its customers.	1	2	3	4	5
CD 2	My organisation makes an effort to meet the demands and desires of its customers	1	2	3	4	5
CD 3	My Organisation collects and acts on feedback from its customers.	1	2	3	4	5
	Information and entropy					
IAE 1	My organisation invests in market intelligence to ensure collection and analysis of market information	1	2	3	4	5
IAE 2	My organisation encourages a system of open flow of information within the organisation.	1	2	3	4	5
IAE 3	My organisation encourages a system of open flow of information with its key suppliers or vendors.	1	2	3	4	5

SECTION C: EARLY SUPPLIER INVOLVEMENT

	Technological Expertise(TE)	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
TE1	It is very important that the supplier provides complete and true information regarding the technological expertise.	1	2	3	4	5
TE2	The supplier has provided complete and true information regarding the technological expertise.	1	2	3	4	5
TE3	The information system in your company has significantly helped the supplier provide complete and true information regarding the technological expertise.	1	2	3	4	5
	New Technologies Identification(NTI)					
NTI 1	It is very important that the supplier contributes to the identification of new materials and new product and process technologies.	1	2	3	4	5
NTI 2	The supplier has contributed to the identification of new materials and new product and process technologies.	1	2	3	4	5
NTI 3	The information system in your company has significantly helped the supplier contribute to the identification of new materials and new product and process technologies.	1	2	3	4	5
	Support in the development of product specification(SDPS)					
SD PSI	It is very important that the supplier makes significant contribution to the product specifications.	1	2	3	4	5
SD PS2	The supplier has made significant contribution to the product specifications.	1	2	3	4	5
SD PS3	The information system in your company has significantly helped the supplier make contribution to the	1	2	3	4	5

	product specifications.					
	Support in value analysis /engineering activity (VA/VE)					
VA/VE 1	It is very important that the supplier contributes significantly to the activity of value analysis /engineering activity	1	2	3	4	5
VA/VE 2	The supplier has contributed significantly to the activity of value analysis /engineering activity.	1	2	3	4	5
VA/VE 3	The information system in your company has significantly helped the supplier contribute to the activity of value analysis /engineering activity	1	2	3	4	5

SECTION D: ORGANISATIONAL LEARNING

	Adaptive Learning	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
AL 1	My Company responds to market changes without changing our norms and practices	1	2	3	4	5
AL 2	My company is reluctant to try out new things because it's not the sort of company that can take risks	1	2	3	4	5
AL 3	Employees of this company are discouraged from experiencing with new and novel ways of working	1	2	3	4	5
AL 4	There's much emphasis in this company on doing things the way the company has always done them	1	2	3	4	5
AL 5	My company rarely collectively questions it's employee's biases about the way they interpret business information	1	2	3	4	5
AL 6	Employees of this company stick to established routines and methods	1	2	3	4	5
AL 7	In this company all employees respond to changes in the environment without changing company core norms and	1	2	3	4	5

	practices.					
	Generative learning					
GL 1	Ideas from all company employees are listened to even if they challenge senior manger's views	1	2	3	4	5
GL 2	My company actively encourages employees and customers to let them know if the company is going wrong in the way they do things and to let them know how the company can improve	1	2	3	4	5
GL 3	My company has in place working practices ,but the company can change these in pursuit of greater efficiency if need be	1	2	3	4	5
GL 4	My company tries to promote risk taking and experimentation in contractual work	1	2	3	4	5
GL 5	Strong emphasis within the company is on research and development, technological leadership and innovation in products /services.	1	2	3	4	5
GL 6	Learning in my company is seen as a key commodity necessary to guarantee organizational survival	1	2	3	4	5
GL 7	My company reflects critically on employee shared assumptions about the company business	1	2	3	4	5
GL 7	Employees of this company are encouraged to question existing policies, current systems and working methods	1	2	3	4	5
GL 8	If need be ,my company reviews employee norms and practices in order to respond approximately to environmental changes	1	2	3	4	5
GL 9	My company regularly comes up with new ways of enhancing employee productivity	1	2	3	4	5
GL 10	My company regularly comes up with new and creative ideas about processes, products and procedures.	1	2	3	4	5

GL 11	My company regularly identify new ways of enhancing employee productivity	1	2	3	4	5
GL 12	Employees in my company get constructive feedback about their work	1	2	3	4	5
GL 13	Innovation is readily accepted in this company	1	2	3	4	5
GL 14	Company employees are not afraid to voice differing opinions on any issue	1	2	3	4	5
GL 15	My company encourages employees to question and constructively challenge current decisions, procedures and operating policies	1	2	3	4	5
	Triple – loop learning					
TL1	Constructively challenging company systems by employees is encouraged in the company	1	2	3	4	5
TL2	My company continuously challenges it's vision to make it more relevant to market developments	1	2	3	4	5
TL3	My company frequently reviews it's culture to make it relevant to market demands	1	2	3	4	5
TL4	My company frequently reviews its mission with the aim of the aim of making it relevant to the market needs.	1	2	3	4	5
TL5	My company continuously checks it's structures in order to find out if they are still relevant to market needs	1	2	3	4	5
TL6	Within this company there is a widely shared understanding of where the company is heading	1	2	3	4	5
TL7	A climate of continuous improvement has been practiced in my company	1	2	3	4	5
TL7	My company innovates even at even at the risk of rendering its own products Obsolete.	1	2	3	4	5
TL8	My company has successfully developed and launched new products /services	1	2	3	4	5
TL9	My company is always first to initiate innovations to which competitors then respond	1	2	3	4	5

TL10	My company incorporates solutions to unarticulated customer needs in the company‘s new products and services	1	2	3	4	5
TL11	My company operates continuous learning cycles	1	2	3	4	5

SECTION E: STOCK OBSOLESCENCE

	Obsolete Stock at hand(SAH)	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
SAH1	We provide stock related documentation to management in a timely manner for decision making	1	2	3	4	5
SAH2	We continue to monitor stakeholder satisfaction with the timeliness stock issuance and delivery.	1	2	3	4	5
SAH3	We continue to monitor stock movement and usage on a daily ,weekly and monthly basis	1	2	3	4	5
SAH4	We are provided with timely training about warehouse processes, operation and stock management.	1	2	3	4	5
	Obsolete Stock Value(SV)					
SV1	We monitor stock ageing on a quarterly basis to match with the Net Book Valve	1	2	3	4	5
SV2	We benchmark market prices amongst different suppliers and negotiate possible discount.	1	2	3	4	5
SV3	We engage suppliers on product scope versus prevailing market /based customer feedback.	1	2	3	4	5

	Percentage of Stock Obsolescence At Hand	**0 – 20**	**21–40**	**41-60**	**61-80**	**81-100**
SOH1	Stock Obsolescence At Hand	1	2	3	4	5
	VALUE IN USD'000	**2000**	**4000**	**6000**	**8000**	**10000**
OSV 1	Obsolete Stock Value (USD)	1	2	3	4	5
	Obsolete value of different products(USD)'000	**2000**	**4000**	**6000**	**8000**	**10000**
OVDP 1	Towers	1	2	3	4	5
OVDP 2	Clamps	1	2	3	4	5
OVDP 3	Micro Wave Antennas	1	2	3	4	5
OVDP 4	Transmission Accessories	1	2	3	4	5

	Shelf Life(SL) Vs recommended normal shelf Life					
SL1	We consistently adhere to the stock management policy ,shelf life affects stock value	1	2	3	4	5
SL2	We can be trusted by our customers / stakeholders	1	2	3	4	5
SL3	We are consistently courteous to our customers	1	2	3	4	5

…Thank You for the Participation…

Appendix Two: Questionnaire for Suppliers

MAKERERE UNIVERSITY
MAKERERE UNIVERSITY BUSINESS SCHOOL
GRADUATE AND RESEARCH CENTRE

Dear respondent,

Your company has been selected to participate in a study on **MARKET COMPLEXITY, EARLY SUPPLIER INVOLVEMENT, and ORGANISATIONAL LEARNING AND STOCK OBSOLESCENCE IN THE TELECOMMUNICATION INDUSTRY.** This study is intended for only academic purposes. The information provided will be treated as highly CONFIDENTIAL. The researcher guarantees the destruction of the acquired information by shredding or burning once the data has been analyzed and inferences drawn. Your co-operation is highly appreciated.

SECTION A: Background Information

Please tick the most appropriate option

1. What is your Company Name

2. Gender

Male	Female
1	2

3. What is your profession?

Finance	Procurement	Marketing	Logistics/Stores	Research &Design	Others
1	2	3	4	5	6

4. Please indicate your Professional qualification?

CIPS	CPA/ACCA	CILT	NEVI	CIM	Others
1	2	3	4	5	6

5. What position do you hold in the Organization?

Supervisor	Manager	Director	Other(Specify)
1	2	3	4

6. Please indicate your highest level of education attained

Diploma	Degree	Post Graduate	Other(Specify)
1	2	3	4

7. How long has this Organisation been in existence?

Less than 3 years	3-5 years	6- 10 years	11-15 years	Above 15 years
1	2	3	4	5

8. What services does the organisation provide?

Fibre & Bandwidth	Consultancy	Valueadded Services	IT & Maintenance	Handsets & accessories	Network Equipment/services	others
1	2	3	4	5	6	7

9. How many employees are in your organization?

1-10	10-50	50-100	100-200	Above 200
1	2	3	4	5

10. What is your organization's annual turnover?

Below 5,000,000	5,000,000 -10,000,000	Above 10,000,000
1	2	3

11. What is your organization's annual profitability (UGX)?

Below 10,000,000	10,000,000 - 50,000,000	Above 50,000,000
1	2	3

In the following sections please state the extent to which you agree or disagree to a particular statement about each competence by ticking the appropriate response.

SECTION B: MARKET COMPLEXITY

	Technological advancement	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
TA 1	My organisation recognizes the impact that changes in technology have on its business	1	2	3	4	5
TA 2	My Organisation makes investment to stay abreast with technological advancement	1	2	3	4	5
TA 3	My Organisation trains staff to keep up to date with the technological changes in the industry	1	2	3	4	5
	Complex desires of market participants					
CD 1	My Organisation invests time and effort to understand the desires of its customers.	1	2	3	4	5
CD 2	My organisation makes an effort to meet the demands and desires of its customers	1	2	3	4	5
CD 3	My Organisation collects and acts on feedback from its customers.	1	2	3	4	5
	Information and entropy					
IAE 1	My organisation invests in market intelligence to ensure collection and analysis of market information	1	2	3	4	5
IAE 2	My organisation encourages a system of open flow of information within the organisation.	1	2	3	4	5
IAE 3	My organisation encourages a system of open flow of information with its key suppliers or vendors.	1	2	3	4	5

SECTION C: EARLY SUPPLIER INVOLVEMENT

	Technological Expertise(TE)	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
TE1	It is very important that the buyer provides complete and true information regarding the technological expertise.	1	2	3	4	5
TE2	The Buyer has provided complete and true information regarding the technological expertise.	1	2	3	4	5
TE3	The information system in the buyer's organisation has significantly helped the buyer provide complete and true information regarding the technological expertise.	1	2	3	4	5
	New Technologies Identification(NTI)					
NTI 1	It is very important that the buyer involves the supplier in the identification of new materials and new product and process technologies.	1	2	3	4	5
NTI 2	The buyer tries to involve the supplier towards contributing to the identification of new materials and new product and process technologies.	1	2	3	4	5
NTI 3	The buyer's information system has significantly helped the supplier contribute to the identification of new materials and new product and process technologies.	1	2	3	4	5
	Support in the development of product specification(SDPS)					
SD PSI	It is very important that the supplier makes significant contribution to the product specifications.	1	2	3	4	5
SD PS2	The supplier has made significant contribution to the product specifications.	1	2	3	4	5

SD PS3	The information system in your company has significantly helped the supplier make contribution to the product specifications.	1	2	3	4	5
	Support in value analysis /engineering activity (VA/VE)					
VA/ VE 1	It is very important that the supplier contributes significantly to the activity of value analysis/engineering activity.	1	2	3	4	5
VA/ VE 2	The supplier has contributed significantly to the activity of value analysis/engineering activity	1	2	3	4	5
VA/ VE 3	The information system in your organisation has significantly helped the supplier contribute to the activity of value analysis/engineering activity	1	2	3	4	5

SECTION D: ORGANISATIONAL LEARNING

	Adaptive Learning	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
AL 1	My organisation responds to market changes without changing our norms and practices	1	2	3	4	5
AL 2	My organisation is reluctant to try out new things because it's not the sort of company that can take risks	1	2	3	4	5
AL 3	Employees are discouraged from experiencing with new and novel ways of working	1	2	3	4	5
AL 4	There's much emphasis in this organisation on doing things the way they have always been done	1	2	3	4	5
AL 5	My organisation rarely collectively questions it's employee's biases about the way they interpret business information	1	2	3	4	5
AL 6	Employees stick to established routines and methods	1	2	3	4	5
AL 7	In this organisation all employees respond to changes in the environment without changing core norms and	1	2	3	4	5

	practices.					
	Generative learning					
GL 1	Ideas from all employees are listened to even if they challenge senior manger's views	1	2	3	4	5
GL 2	My organisation actively encourages employees and customers to let them know if the company is going wrong in the way they do things and to let them know how the company can improve	1	2	3	4	5
GL 3	My organisation has in place working practices ,but the company can change these in pursuit of greater efficiency if need be	1	2	3	4	5
GL 4	My organisation tries to promote risk taking and experimentation in contractual work	1	2	3	4	5
GL 5	Strong emphasis within the organisation is on research and development, technological leadership and innovation in products /services.	1	2	3	4	5
GL 6	Learning in my organisation is seen as a key commodity necessary to guarantee organizational survival	1	2	3	4	5
GL 7	My organisation reflects critically on employee shared assumptions about the company business	1	2	3	4	5
GL 8	My organisation regularly comes up with new ways of enhancing employee productivity	1	2	3	4	5
GL 9	My organisation regularly comes up with new and creative ideas about processes, products and procedures.	1	2	3	4	5
GL 10	My organisation regularly identify new ways of enhancing employee productivity	1	2	3	4	5
GL 11	Suppliers get constructive feedback about their work from the buyer	1	2	3	4	5
GL 12	Innovation is readily accepted in this company	1	2	3	4	5

	Triple – loop learning					
TL1	My organisation continuously challenges it's vision to make it more relevant to market developments	1	2	3	4	5
TL2	My organisation frequently reviews it's culture to make it relevant to market demands	1	2	3	4	5
TL3	My organisation frequently reviews its mission with the aim of the aim of making it relevant to the market needs.	1	2	3	4	5
TL4	My organisation continuously checks it's structures in order to find out if they are still relevant to market needs	1	2	3	4	5
TL5	There is a widely shared understanding of where the company is heading	1	2	3	4	5
TL6	A climate of continuous improvement has been practiced in my organisation	1	2	3	4	5
TL7	My organisation operates continuous learning cycles	1	2	3	4	5

SECTION E: STOCK OBSOLESCENCE

	Obsolete Stock at hand(SAH)	**Strongly Disagree (1)**	**Disagree (2)**	**Not Sure (3)**	**Agree (4)**	**Strongly Agree (5)**
SAH1	We provide stock related documentation to the buyer in a timely manner for decision making	1	2	3	4	5
SAH3	We continue to monitor stock movement and usage on a daily ,weekly and monthly basis	1	2	3	4	5
SAH4	We are provided with timely information about processes, operation and stock management by the buying organisation	1	2	3	4	5
	Obsolete Stock Value(SV)					

SV 1	We monitor stock ageing on a quarterly basis to match with the Net Book Valve	1	2	3	4	5
SV 3	We engage suppliers on product scope versus prevailing market /based customer feedback.	1	2	3	4	5

	Percentage of Stock Obsolescence At Hand	**0 – 20**	**21–40**	**41-60**	**61-80**	**81-100**
SOH1	Stock Obsolescence At Hand	1	2	3	4	5
	VALUE IN USD'000	**2000**	**4000**	**6000**	**8000**	**10000**
OSV 1	Obsolete Stock Value (USD)	1	2	3	4	5
	Obsolete value of different Products (USD'000)	**2000**	**4000**	**6000**	**8000**	**10000**
OVDP	Towers	1	2	3	4	5
OVDP	Clamps	1	2	3	4	5
OVDP	Micro Wave Antennas	1	2	3	4	5
OVDP	Transmission Accessories	1	2	3	4	5

	Shelf Life(SL) Vs recommended normal shelf Life					
SL1	We consistently adhere to the stock management policy ,shelf life affects stock value	1	2	3	4	5
SL2	We can be trusted by our customers / stakeholders	1	2	3	4	5
SL3	We are consistently courteous to our customers	1	2	3	4	5

…Thank You for the Participation…